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LIQUOR CONTROL will rank with PUBLIC WORKS

as a major municipal problem during the months immediately ahead. For important articles on these subjects see pages 5, 35, 41, 43, 45, 49, 64, 68, 69, 75 of this issue.

Both of these subjects are also to receive special consideration at the National Conference on Government, to be held at Chalfonte-Haddon Hall, Atlantic City, November 9-11.

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In THE MUNICIPAL INDEX (the annual reference volume of data and condensed catalogs published by the American City Magazine Corporation) readers will find much material, including lists, and articles on a wide variety of municipal and civic subjects, not published in the monthly issues of the magazine.

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"Aqueduct OF MIRACLES"

MEXICO calls it "Acueducto de los Remedios" because for more than a hundred years (1620-1724) it carried water to the famous Church of Our Lady of Miracles near Mexico City. But the last two centuries have watched it crumbling into a picturesque and romantic ruin that recalls the glory of Old Mexico. Now Modern Mexico looks for its water supply to Layne Pumps and Well Water Systems. Its most progressive cities, including Mexico City, its greatest ranchos, its mines, its industries, know that *Layne* means *more* water at *less* cost, just as does the rest of the world. Send now for Layne's free booklet, "WATER OR NO PAY," which no man interested in water supply should be without.

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LAYNE PUMPS
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Public Works and Housing Progress

Uncle Sam to Build Houses and Banish Slums

FORMATION of a Federal housing corporation as an adjunct to the Public Works Administration was announced on October 29 by Administrator Harold L. Ickes.

The corporation, certificate for which has been filed under the laws of the state of Delaware, is to be known as the Public Works Emergency Housing Corporation. Its purposes, as set forth in the certificate of incorporation, are "the construction, reconstruction, alteration and repair of low-cost housing projects or slum clearance projects, apartments, houses, homes and structures of every nature and kind."

Under the provisions of the National Recovery Act this corporation, as an agency of PWA, has power to acquire by purchase or by the exercise of the power of eminent domain any property necessary in connection with the projects undertaken by it, subject to the approval of the Administrator.

The corporation will engage in low-cost housing and slum clearance projects which otherwise would not be undertaken. It will lend every assistance to states, municipalities and public housing authorities in the development of worthy projects, and it may finance projects outright as a demonstration to the country of what can be done.

While the corporation will be empowered to do anything that a private contractor or builder can do, the policy of the Public Works Administration, as repeatedly stated by Administrator Ickes, is not to interfere with or enter into competition against legitimate private businesses, but to supplement and stimulate these businesses in a field of vital social importance.

The corporation is set up under the National Recovery Act as a means of facilitating the housing and slum clearance program as planned by the Housing Division of the Public Works Administration.

The corporation has broad powers to engage in a general construction business, to finance and aid in financing low-cost housing and slum clearance, to perform engineering and architectural work, and to conduct and carry on the business of builders and contractors.

In addition to buildings, the corporation has power to locate, lay out, construct and maintain roads, avenues, parks, playgrounds, recreational facilities, sewers, bridges, walls, utilities and incidental improvements in connection with housing projects.

The corporation may equip, furnish, operate, manage and maintain homes and buildings of every nature.

Subject to the approval of the Administrator of Public Works or other authorized representatives of the United States, the corporation may borrow or otherwise raise money.

The corporation has an authorized capital stock of three shares without par value. The stock will be held in the names of the incorporators for the United States. The incorporators are Administrator Ickes, Secretary of Labor Frances Perkins, and Robert D. Kohn, Director of the Housing Division of the Public Works Administration. The corporation will commence business with a nominal capital. It is contemplated that all funds with which the corporation will carry out its program will be furnished by PWA.

Cooperation with Municipalities

With the announcement today of the creation of the Public Works Emergency Housing Corporation, Administrator Ickes issued a statement in part as follows:

"The formation of this corporation is the outgrowth of our recent experiences in PWA in attempting to increase building labor employment in the field of low-cost housing. Our experience of the last three months indicates clearly that we may not depend upon private enterprise or limited dividend corporations to initiate comprehensive low-cost housing and slum clearance projects.

"The future financial stability of many of our urban centers depends upon the prompt reclamation of their slum areas. Relatively few of our cities realize that bad housing has a direct effect on their revenues. To meet this situation more is required than isolated action on the part of individuals. Movements to better conditions must be launched by a body of citizens who realize that action must eventually be guided by a state, county or municipal Housing Authority. The efforts of the Administrator and the corporation will be to encourage the creation of such Authorities. Where the municipality lacks or cannot immediately obtain the necessary charter powers, it is proposed to proceed along one or the other of the following courses:

"(1) Through some local group the immediate study of the local situation, including the necessary investigation of available low-cost slum land, will be encouraged. Therefore, the acquistion of the necessary land would be by private contract if possible, otherwise by eminent domain, which power is derived from the National Recovery Act.

"The success of this program depends upon the acquisition of low-cost land in contiguous blocks which will involve the destruction of slums. A single clearance and rehousing operation may involve the acquisition of other low-cost land than that cleared, so as to reduce further land cost per unit and better distribute the new low-cost housing with respect to industrial employment. On three or four projects of slum clearance already approved by the Administrator the land covered with old houses has cost less than $1 per square foot. Elsewhere in metropolitan areas more will have to be paid, but none will be approved on such high-priced land as has been proposed for certain projects in some of our largest cities. It is not proposed to standardize improvements; they will be designed to meet the needs of each particular city. If apartments be used, they will be confined to low type structures; the building of skyscrapers will not be resorted to in any circumstances.

"(2) To make available to the state legislatures information on which they may act to create Housing Authorities in cities or counties so that such Authorities may cooperate with the Government, or may act as its agent in the management of the properties when completed.

"(3) To develop a procedure which will aid a city to work out a long-term plan on which to continue the process which the Federal Government has started. Eventually each state or large metropolitan area could have an agency empowered to engage in the rehabilitation of low-cost residence areas. Through such a body the Federal Government could continue its help and eventually, in a lesser and lesser degree, aid what must become a local function of government.

"This scheme of Federal aid should produce housing at rentals which have never before been attained. The assignment of these accommodations to families of low income must be closely guarded by the organization of agencies in a city to control their use so that those for whom they are built will really benefit. The housing thus provided will not be competitive with existing housing of good character.

"The corporation will have behind it the resources of PWA. The amount of funds to be transferred to the corporation will be determined by PWA as developments require."

Formation of the Public Works Emergency Housing Corporation does not interfere with the continued availability of Federal funds for low-cost housing projects of limited-dividend corporations or local public bodies.

448 Local Public Works and Housing Projects Approved by PWA to October 24

A SURVEY of PWA allotments for non-Federal public works and housing projects up to October 24 revealed a total of 448 such projects as having been approved for loans and/or grants out of the $3,300,000,000 PWA fund. In a statement released on October 30 by the Federal Emergency Administration of Public Works, it was pointed out that more water works have received allotments than any other type of non-Federal projects, with sewers coming next on the list. The survey by types of 448 projects and amounts allotted showed:

Character of Project	Number	Total Allotment
Water works	100	$29,004,160
Sewers	91	41,805,195
Streets and highways	80	20,144,602
Housing	17	46,219,958
Bridges and structures	23	91,239,351
Schools	35	5,537,495
Hospitals	14	2,300,500
Other buildings	57	11,647,160
Power projects	5	4,845,700
Recreation	3	377,200
Miscellaneous improvements	23	2,336,450
Total	448	$255,457,771

Hundreds of similar projects are provided for in Federal allotments, including, of course, the $100,000,000 or more which is being expended within city limits by the 48 state highway departments out of their allotments from the $400,000,000 appropriation for highway improvements and traffic relief specifically provided for in the NIRA act.*

* See page 49 of this issue and page 11 of the October issue.

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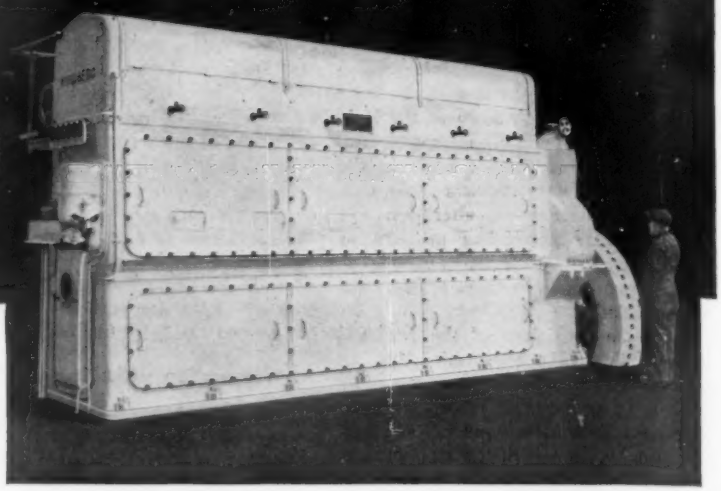

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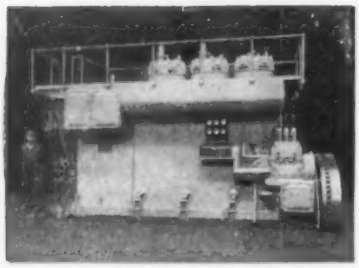

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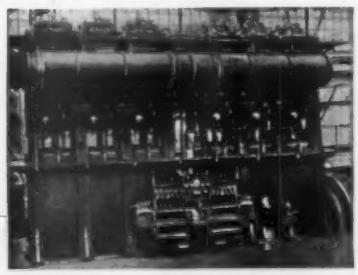

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If you are considering a new Diesel unit, let a Nordberg Engineer explain the merits of this line of Diesels.

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MILWAUKEE, WIS.

Water Supply and Purification

Water Works News and Reviews

Handling Delinquent Water Accounts

FOURTEEN days after a water bill is mailed to a consumer in Los Angeles, if the bill is still unpaid, a post-card known as a "courtesy notice" is mailed, which is in no sense a duplicate bill, but simply recites ordinance requirements in the payment of bills. The ordinance states, "Bills become delinquent fifteen days after presentation and if not paid the water may be shut off without further notice." The purpose of this card is primarily to bring to the attention of the consumer who has overlooked payment the fact that the bill is due and payable. Further, by its continued use consumers become familiar with ordinance requirements. On the whole, it tends to lessen the days between the mailing date of the bill and the date of payment. On the other hand, in some cases it acts in the opposite direction, causing consumers to wait until they have received this notice before giving any attention to the payment of their water bills month after month. Again, consumers habitually prompt in settlement of their bills upon once overlooking payment and receiving this notice sometimes take vigorous exception by interpreting it as a dun and as a reflection upon their credit and general standing in the community. The courtesy card has, however, received the approval of the Post Office Department as to terminology, and when mailed as a post-card fully complies with postal regulations.

The general effect of this card immediately after its being mailed is shown by a sharp upturn in collections after a steady downward trend between the date of the mailing of the bill to the mailing date of the notice.

All accounts unpaid five days after the card is mailed are given to field collectors, and, in theory, collection is effected by them or service is discontinued. In better times the rule is absolute, concessions being made for variance only upon presentation of mitigating circumstances to an extent dictated by common sense and judgment, in which case a further extension of time for payment is granted. During the present stress further time is granted for payment of the greater number of accounts reaching the shut-off period, and a close follow-up is kept in accordance with the agreement reached between the consumer and the field collector.

Where collection is not effected after the usual number of calls, and shut-off becomes necessary, the account is carried into an uncollectible bills ledger for a period of three months, during which collection effort is continued. If collection has not been made at the end of this period, the account is charged off as uncollectible and placed in a dead file, to be revived only upon relocating the consumer at another location. This is accomplished by checking names on new contracts against the dead account file.

While this plan is to a great extent automatic in operation and provides for a rapid and efficient method for the collection of revenues, and is designed to afford the maximum in desirable public relations, it is at the point where the human element is of necessity injected into the plan that difficulties begin which cause collection costs to increase to an amount approaching the money value of revenues collected. It is generally agreed, however, that such expenditures are justified in adhering to established businesslike practices, even if the expense involved sometimes exceeds the revenues received.

—From a paper by CARL K. CHAPIN, Commercial Director, Department of Water and Power, Los Angeles, Calif., presented before the California Section, American Water Works Association.

Treatment of Water for Taste and Odor

AT the Lawrence, Kans., water purification plant, the usual tastes due to algae, dead leaves and chlorine have been evident at various times. Ammonium sulphate treatment was begun in April, 1931, and additional equipment also added for recarbonation. Prior to the addition of the ammonium sulphate, chlorine could be applied to the filter influent with only the three-hour detention period in the clear well, but with the application of ammonium sulphate a further detention period was found to be necessary. This was obtained by transferring the application to the lime-mixing basin providing an average detention period of about eight hours with one hour interval between applications of ammonium sulphate and chlorine. This detention period was found to be ample for good operation. One-half pound available ammonia per pound of chlorine has given the best results with this treatment, which is equivalent to eight pounds ammonium sulphate per million gallons.

Very good results have been obtained with the ammonia-chlorine treatment. Chlorinous tastes have been practically eliminated. No complaints from consumers have been made when troubles from algae occur. For a ten-day period during August, 1931, unusually heavy odors from decaying algae were noted in the plant. No tastes accompanied this condition, owing to the ammonia treatment, and no odor was evident in the mains. Residual chlorine may be maintained at 0.4 to 0.5 ppm with no apparent tastes. The effect of the chlorine is lost, however, if 0.1 to 0.2 ppm residual is not maintained on the filter influent for sufficient detention before the water reaches the consumer. A chlorine dosage is also applied to the pump suction for additional protection.

—From a paper by C. T. HOUGH, Superintendent, Water Works, Lawrence, Kans., presented before the Missouri Valley Section, American Water Works Association.

12,000-Foot Water Trench Furnished Employment for 119 Men

UNEMPLOYMENT in Denville Township, N. J., was temporarily vanquished when 119 men dug a 12,000-foot ditch with pick and shovel for the installation of water pipe to reach from a new well in Union, N. J., to the existing line. On the first day, approximately 800 feet of ditch was completed and water department employees began to lay and calk the pipe.

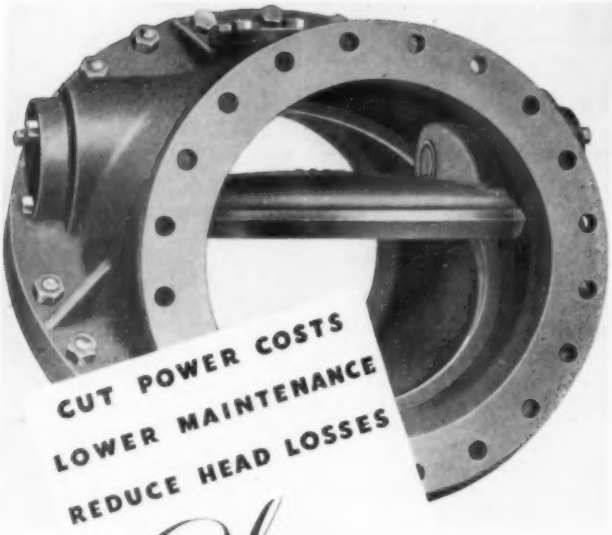
The first gang, composed of 59 men, began work at 8 o'clock, quit at noon, and were replaced by 60 more, who worked until 4:30. After that the gangs worked from 7 until noon and from noon until 5, alternating every other week.

In the gangs were men of many walks in life. A day laborer worked alongside a graduate engineer. A carpenter worked alongside a photographer; a plumber, a mason and an accountant endeavored to excel each other in footage dug. A bank clerk and the former head of a once prosperous contracting company worked within a few feet of each other, and up the line the head of a real estate development and a restaurant keeper worked cheerily.

Under the agreement with the township, the men worked as a voluntary corporation and received 55 cents a foot for the excavating and filling, with a 30-hour working week. Each gang worked under a foreman of its own choosing, the foreman digging with his men. The group as a whole was under the charge of a general superintendent selected by the foremen and recognized by the township as the men's representative. Money for the work was furnished by the Reconstruction Finance Corporation, which township water bonds as security.

HORACE COOK,
Water Superintendent.

The 1933 Municipal Index contains statistics on over 450 water supplies in the United States covering mains, hydrants, services and meters.



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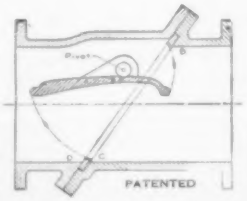
In addition, the disc remains steady while open, eliminating unnecessary wear of parts,—operates equally well in either horizontal or vertical position and will close drop tight without slamming.

The many advantages of Chapman Non-Slam Check Valves are fully described in an illustrated booklet that we will be glad to send you upon request. *Write for it today.*



A cushioning effect, obtained by forcing the short flap of the disc against the stream, prevents slamming

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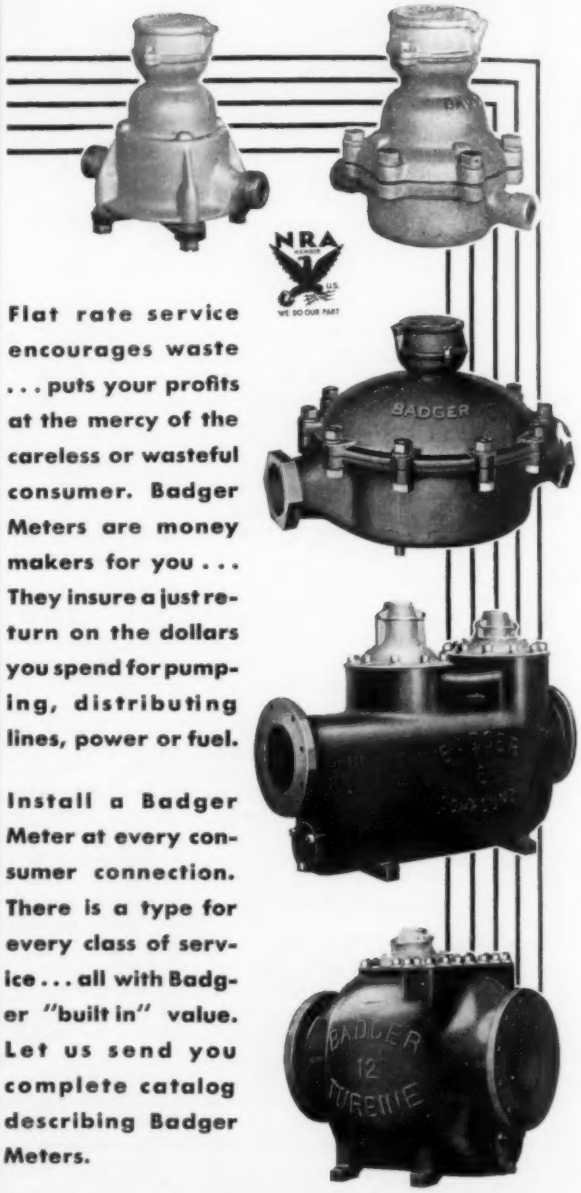

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BADGER *Water* METERS

Meters Check Losses

Reports on the Services of Water Meters

Belmont, Mass.

THE water system of Belmont has always been metered 100 per cent since the town bought the water supply in 1887. The population in 1910 was 5,500 and the consumption 59 gallons per capita daily. In 1920 the population was 10,600 and the consumption 54 gallons per capita daily. In 1930 the population had risen to 22,070 and the consumption to 59 gallons per capita daily. There is no industry in Belmont, the town being entirely given over to residences and the necessary stores to serve a suburban community.—E. J. LOONEY, Superintendent.

Ironwood, Mich.

METERS were installed in Ironwood in 1923, completely metering the system. The power costs were reduced approximately $1,000 per month for pumping when meters were installed. In 1930 the population was 14,500, the system was 100 per cent metered, and the per capita consumption was 67.1 gallons daily. In 1932 the population had decreased to 14,299, all services were metered, and the per capita consumption had dropped to 66.4 gallons daily.—J. E. SAHLIN, Superintendent.

Jackson, Mich.

JACKSON has the record of having been 100 per cent metered for almost 30 years. For this reason it is difficult to show any particular records as to the saving through metering. In 1926 the population of Jackson was 50,000 and the per capita consumption 95 gallons daily. In 1930 the population was 57,000 and the per capita consumption 116 gallons daily. In 1932 the population was 55,987 and the consumption had dropped to 98 gallons per capita daily because of reduced industrial uses.—DAVID STELLINGWORTH, Superintendent.

Canton, Miss.

THROUGH the installation of meters the city has effected annual savings of about $1,000 in the cost of pumping water, and an additional $1,500 saving in the expense of drilling and maintaining wells, making a net saving of $2,500 annually because of 100 per cent metering. In 1910 the population of Canton was 3,300, there were no meters in the system, and the daily consumption was about 150 gallons per capita daily. In 1920 the population was 3,940, the system was 100 per cent metered, and the consumption was 62 gallons per capita daily. In 1930 the population was 4,750, the services were 100 per cent metered, and the consumption was 68 gallons per capita daily. In 1932 the population was 4,500, the system was 100 per cent metered, and the average daily consumption was 70 gallons per capita.—W. M. REID, Superintendent.

Jackson, Miss.

THE city of Jackson has grown very rapidly since the war, and metering has been continued gradually. In 1910, the population was 21,262, the domestic services were 25 per cent metered, and the industrial services 100 per cent metered. There is no per capita consumption record available. In 1930 the population of the city had increased to 48,261, with about 2,000 customers supplied outside the city limits. At that time the domestic services were 85 per cent metered and the industrial services 100 per cent metered. The average per capita consumption was 42 gallons daily, as against 142 gallons prior to that time. The population in 1932 was about the same as in 1930, and the domestic services were 87 per cent metered, the industrial services were 100 per cent metered, and the per capita consumption had dropped to 34 gallons daily.—J. H. FEWELL, Superintendent.

Lexington, Miss.

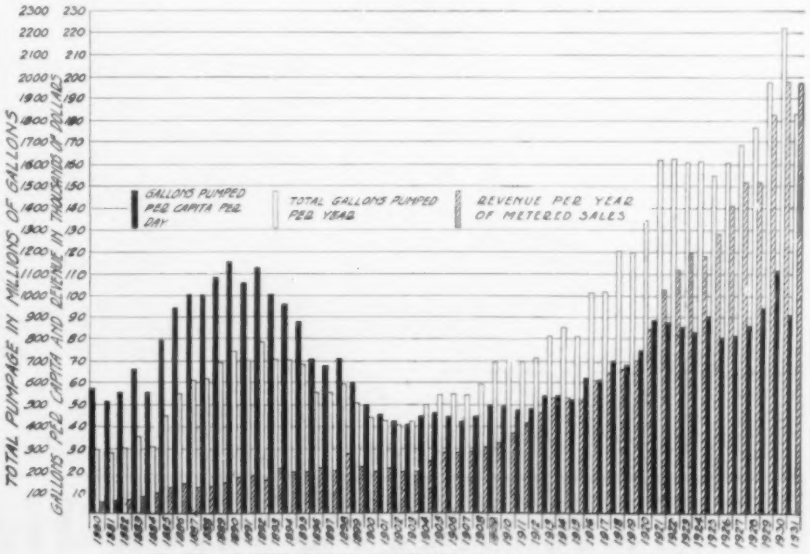
FROM 1912, when the water-works plant was built in Lexington, Miss., and operated on flat rate, to 1927, when it was 100 per cent metered, the average yearly loss was $1,500, which had to be made up by special levies. Since 1927, the gross profits collected total $21,000 above operating expense, out of which $16,000 was expended to retire bonds and to pay interest. The special levies were stopped in 1927, so that the plant is now netting yearly about $2,000 over operating costs and a regular retirement of bonds and the payment of interest. This is being done with very low water rates.—C. A. GLOVER, City Clerk.

Kansas City, Mo.

IN 1900 the population of Kansas City was 163,752, the services were 29 per cent metered, and the average daily consumption (expressed in million gallons) was 9.96 gallons. In 1910 the population was 248,381, the services were 44.4 per cent metered, and the average daily consumption was 24.33 gallons. In 1920 the population had increased to 324,410, the services were 79.6 per cent metered, and the average daily consumption was 44.56 gallons. In 1930, the population was 399,484, the services were 86.6 per cent metered, and the average daily consumption was 57.52 gallons. The population increased to approximately 420,000 in 1932, the services were 88 per cent metered, and the average daily consumption had dropped to 55.34 gallons.—T. D. SAMUEL, JR., Chief Engineer and Superintendent, Water Department.

Miles City, Mont.

SINCE the construction of the new water filtration and purification plant in 1910 in Miles City, the system has been 100 per cent metered. The population of Miles City in 1932 was 7,900, and the average daily consumption 88.6 gallons per capita.—ROY N. STEWART, City Engineer and Water Superintendent.


TOTAL PUMPAGE IN MILLIONS OF GALLONS
GALLONS PER CAPITA AND REVENUE IN THOUSANDS OF DOLLARS
GALLONS PUMPED PER CAPITA PER DAY
TOTAL GALLONS PUMPED PER YEAR
REVENUE PER YEAR OF METERED SALES

A CHART OF THE TOTAL PUMPAGE, PER CAPITA CONSUMPTION AND REVENUE OF THE 100 PER CENT METERED SYSTEM AT KALAMAZOO, MICH.

International Trucks and McCormick-Deering Tractors Cut Snow Removal Costs « « « «

This photograph shows a 7½-ton International Model A-8 Truck and snow plow at work on a county highway in Cayuga County, New York. This big truck, with its efficient 6-cylinder engine, has the weight and power to buck the drifts and clear the roads under even the most severe conditions.

•

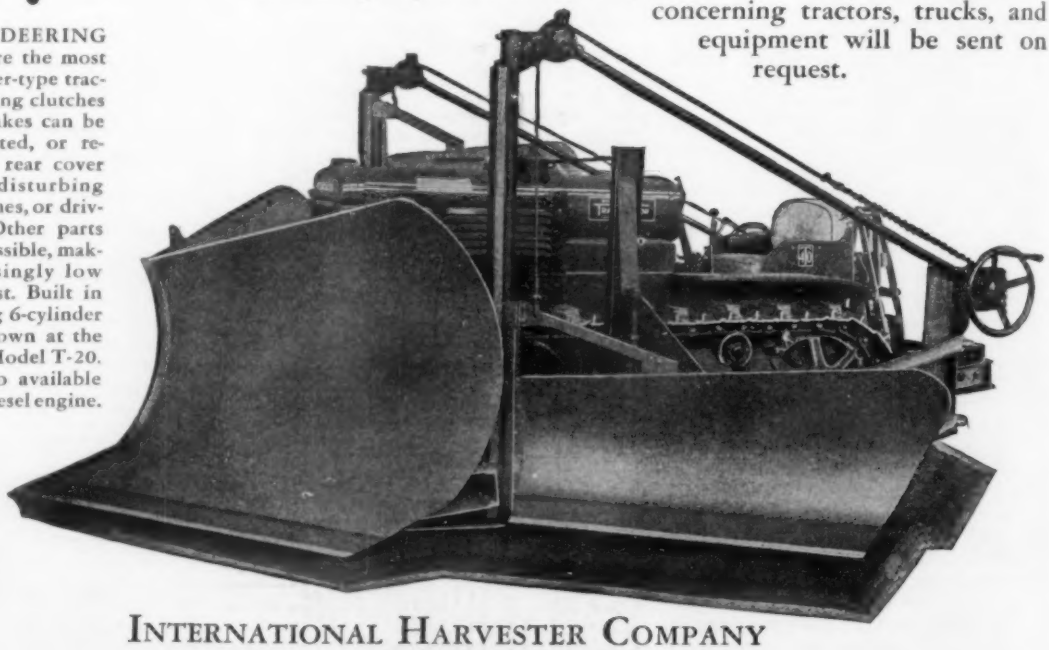
INTERNATIONAL TRUCKS are the product of International Harvester manufacturing policy, which insists on quality as the *first and foremost factor in the making of a truck.* Internationals are not the cheapest trucks to buy—but they are the most economical trucks to own and operate.

Ask an International branch or dealer to show you in detail. Sizes range from ½-ton to 7½-ton, with bodies and equipment suitable for every kind of road and municipal work. Demonstrations will be arranged on request.

•

McCORMICK-DEERING TracTracTors are the most accessible crawler-type tractors built. Steering clutches and steering brakes can be inspected, adjusted, or replaced through rear cover plates without disturbing tracks, track frames, or driving sprockets. Other parts are equally accessible, making for surprisingly low maintenance cost. Built in two sizes, the big 6-cylinder Model T-40 (shown at the right) and the Model T-20. The T-40 is also available powered with Diesel engine.

EVERY COMMUNITY in the snow belt is faced with the necessity of keeping the roads and streets open all winter long. Taxpayers expect economy, but they also expect convenience. Their heavy investment in highway construction and automotive equipment leads them to demand full use of the highways regardless of season or weather. Many communities are meeting this demand by plowing snow at low cost with McCormick-Deering Tractors and International Trucks. These units can be used during the construction and maintenance season for a hundred and one jobs . . . then, they can be equipped with snow plows and held in readiness for emergency work when the snow comes. Complete information concerning tractors, trucks, and equipment will be sent on request.



INTERNATIONAL HARVESTER COMPANY
606 S. Michigan Ave. OF AMERICA (*Incorporated*) Chicago, Illinois

INTERNATIONAL HARVESTER

Progress Requires Thought

News and Reviews of Municipal Improvements

Clanking Manhole Covers

THE city of Indianapolis has practically eliminated the rattling, clanking manhole covers in its business and residential districts caused by rapid motor traffic. Our investigation revealed that the old method of padding with burlap sacks and old rubber inner tubes was unsatisfactory and expensive, did not decrease complaints, and gave temporary relief only.

We find that elastic cushions or gaskets made from expansion joint material not only silence noisy manhole covers but are easily installed and inexpensive. The emergency crews and district inspectors carry a few ring gaskets in their cars or trucks, with instructions to install whenever they find a noisy cover in their district.

This service has been in operation for the past eighteen months and is highly appreciated by many citizens. We quote the following comment:

"I have been greatly annoyed by two loose manhole covers at Thirty-third and Meridian. I called the Street Commissioner's office at 9:10 A.M. one day. At 9:50 one had been silenced. I wrote the Mayor, complimenting him on the promptness and efficiency of his men. The water company very kindly put burlap in the other, so now I may read and write without unnecessary noise.

"If the bus drivers would silence the noise of stopping and starting, if drivers of motor cars would cease sounding horns, if Uncle Sam's mechanics would tighten the bolts on the mail delivery trucks—all would be well."

WILBUR H. WINSHIP,
Street Commissioner, Indianapolis, Ind.

How Wayne County Aided Employment

TO relieve the unemployment situation, the Board of County Road Commissioners of Wayne County, Mich., started operations early in the fall of 1931, and because of the open winter were able to give employment to many hundreds of men on grading and drainage work which ordinarily would have been held over until spring. By working men alternate weeks, employment was given to several hundred throughout the winter. Upon the advent of good weather, paving operations were started in the spring of 1932 under the same method of staggered employment. Eight pavers were in operation during the construction season and all work was done with manual labor to employ a maximum number of men consistent with economy and dispatch. As in the past, the quality was of the best, design of the latest, and economy of the highest. Material prices and not a lowering of labor rates accounted for lower construction costs.

While the county was in a period of progressive reduction in budgets, its activities, in view of lower prices, were not reduced in the same proportion. This reduction in prices, together with contractual relations with the State Highway Department for work on state trunk line highways, enabled the county to keep a good program of necessary work under way.

JOHN S. HAGGERTY,
Chairman, Board of County Road Commissioners.

Spreading the 1933 Highway Dollar

MANY county highway officials have been instructed to allot their road funds to give employment to the maximum number of men. In Onondaga County, N. Y., instructions were to allot the funds so that three times the normal number of men would be employed. In order to provide work for these men without having them perform unnecessary tasks, a new plan of work was devised.

This provides that new construction work for the next few years be confined to the preparation of county roads for pavement to be laid when and if traffic and budgets warrant. Grading and alignment are carried on and drainage systems, guard-rails, etc., installed just as if the roads were to be paved at once. In order that they may be used pending the time when funds will be available for paving, the roads are surfaced with gravel and treated with calcium chloride, which acts as a binder and also prevents dust.

When this program was first announced, the county was threatened with taxpayers' actions or injunctions to prevent the building of this type of road. It is interesting to note that the residents along the 50 miles of roads already completed, who were among those violently opposed to the program, are now more than pleased. They are coming to us and requesting that the roads on which they live be maintained continuously as gravel roads. The taxpayers appreciate that this plan is better than any unemployment relief work intended solely to take care of the unemployed regardless of the value of the work accomplished.

RAY TRAVER,
Superintendent of Roads, Onondaga County, New York.

FIELD, TOGETHER WITH AN AIRWAY ROTATING BEACON WITH COURSE TWO-WAY DEPARTMENT OF COMMERCE INTERMEDIATE LANDING LIGHTS AND DIRECTIONAL ARROW INSTALLATION

The arrow is constructed of sheet metal sections and is placed so that it points in the direction of the next beacon along the airway

Pay Rolls - Not Doles for them this winter

When a Greater Incentive says:
. . . Build Now!

You can start or finish a Sewage Disposal System Regardless of Weather

There is every reason for continuing work on sewage disposal plant or sewer extension projects right through the winter—every reason for starting such, NOW! The work can be carried on successfully, practically, and economically on all but the severest days.

Keep the payroll going—keep workers and their families from falling back on doles—continue work.

The Federal Government stands ready to help you.

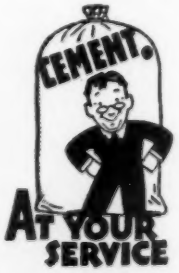
We can help you, too. The Portland Cement Association will furnish you with all the information that you need on planning and protecting the work so that it can be carried on all winter. Write us.

When cash was the incentive—when it was important financially that commercial structures be completed for early occupancy—winter never stopped concrete construction—not even on skyscrapers.

Now a greater incentive faces us—the relief of human suffering,—and on practically all types of concrete construction the work can be continued throughout the winter. This applies not only to sewage disposal plants, but to many other types of public construction as well—bridges, curb and gutter work, buildings, ramps, etc.

The Portland Cement Association will gladly give all needed information as to planning and protecting the work, and should conditions make it inadvisable will frankly tell you so.

FOR FURTHER INFORMATION WRITE THE CEMENT SERVICE MAN, CARE OF:



PORTLAND CEMENT ASSOCIATION
Room 2311
33 West Grand Avenue
CHICAGO

85 to 90% of the money spent on Concrete Construction Goes to Labor

Treatment Conserves Health

SEWERAGE and SEWAGE DISPOSAL

Status of Sewer Rental Laws in the United States

WHILE marked interest has been shown recently in sewer rental laws, the principle of sewer rental charges dates back over forty years. In 1892 Massachusetts passed a law providing for the establishment of "just and equitable annual charges for the use of common sewers." In fact, the application of charges for sewer maintenance dates back to 1796, when the Acts and Resolves of Massachusetts, Chapter 14, provided that "when any common sewer shall be stopped or gone to decay, the selectmen of the town shall assess the cost of the repairs upon those benefited by the sewer." Brockton, Mass., passed a sewer rental ordinance in 1894, which has been in force continuously from that time. The state of Indiana is the latest to pass a sewer rental law, enacted August 17, 1932.

There are at present 26 states and the District of Columbia which either have passed sewer rental laws or have constitutions such that charges for sewer service can be made legally. The following tabulation lists the states and the number of known municipalities having local ordinances providing for service charges:

State	Number of Municipalities Making Service Charges
Alabama	2
Arizona	1
Arkansas	1
California	3
Connecticut	2
Georgia	1
Indiana	—
Iowa	—
Kansas	2
Maryland	8
Massachusetts	13
Michigan	3
Mississippi	2
Missouri	2
Montana	1
Nebraska	1
New Jersey	12
New Mexico	2
New York	2
North Carolina	19
Ohio	21
Oklahoma	2
Pennsylvania	13
Texas	*211
Wisconsin	—
Virginia	4
District of Columbia	

*37 over 1,000 population.

A total of 328 municipalities in the United States in 1931, the last year for which a complete survey has been made, had ordinances providing for sewer rental charges. It is interesting that the two states, Texas and North Carolina, containing the larger number of municipalities providing for sewer rental charges, do not have a definite sewer rental law.

—From a review by J. A. CHILDS and G. J. SCHROEPFER, Chief Engineer and Principal Assistant Engineer, respectively, Metropolitan Drainage Commission, Minneapolis and St. Paul, Minn., published in *Sewage Works Journal*.

Removing Tree Roots from Small Sewers

THE clogging of sewers by roots of soft wood trees is a serious problem. Any municipality which permits the planting of soft wood trees along the sidewalks and on lawns at or near sewers and house lateral conections may expect trouble. Sewers affected by roots are generally from 6 to 15 inches in diameter, although large sizes sometimes become partly filled with root growths. The poplar tree apparently causes the most damage. The roots will extend 50 to 80 feet from the tree, follow along the pipe and either enter through a small opening in the joint or penetrate through a joint of soft material to the inside of the sewer. Once inside the sewer, the small roots will grow and expand into a network or cluster, and in some cases develop roots of larger size until the sewer is filled. One small root will often cause a growth of sufficient size to fill a sewer for a distance of 20 feet or more.

The sewer maintenance department has a difficult and expensive task in removing these obstructions. Grapple irons and turbine cutting machines have been effective where the portion of the sewer clogged is on a tangent and regular grade. Where the root growth is on angles, curves or irregular construction, mechanical apparatus is often unsatisfactory and the only means of removal is to uncover the sewer and reconstruct it. A reconstruction of the sewer is especially necessary where the root growth forms a solid root together with a cluster or finer growth. Solid roots from 1 inch to 4 inches in length growing in sewers have been observed.

—From a paper by I. CHARLES PALMER, Engineed in Charge, Sewer Construction and Design, Pittsburgh, Pa., presented before the International Association of Public Works Officials.

The Sewage Treatment Plant at Erie, Pa.

THE sewage treatment plant at Erie, Pa., is of the separate sludge-digestion type, employing only primary treatment. It comprises a control building; another building housing the auxiliary units; Dorr clarifiers, Dorr digesters, and open sludge beds. The control building houses a 10-foot mechanically cleaned Dorr screen, incinerator, grease-skimming tank, garage, workshop and grit-conveying apparatus. The grit chambers consist of two 30-foot Dorr detritors equipped with grit-washing classifiers. A grit storage hopper is provided. Primary sedimentation is effected by means of two 90-foot square by 14-foot side-wall depth, traction-type Dorr clarifiers. The clarifiers will afford a one-hour detention period at a 40-mgd rate of sewage flow; at present, the detention period is slightly over 1½ hours. Immediately adjacent to these clarifiers is a three-story control building in which are located the primary sludge pumps, central electric control panel, boiler, complete chemical laboratory, office, lavatory, dry-feed machine and ample storage space. The plant effluent is discharged through an 1,100-foot outfall sewer into Lake Erie.

The sludge is digested in three 85-foot diameter by 22-foot side-wall depth Dorr digesters which are equipped with sludge-stirring and scum-breaking devices. Near these digesters, and housed in a suitable building, are the gas meters, one for each digester, flame trap, gas pressure relief valve, boilers for sludge heating, lime feed machines and sludge - recirculating pumps. Twelve open sludge beds are provided, which have a total area of 110,000 square feet.

—From a paper presented by A. B. CAMERON, Superintendent, Erie sewage treatment plant, Erie, Pa., before the Pennsylvania Sewage Works Association.

Water Metering as It Relates to Sewage Disposal

SEWAGE to be handled at the sewage treatment works represents the spent water supply of the community together with a small percentage of solid wastes. The quantity to be handled includes water wasted as well as water used for useful household or industrial purposes. Sewage problems are therefore closely related to water-works practices, and studies for economy in design should include closer scrutiny of such practices than is evidenced in many cases. There can be little defense of the type of economics that permits the construction of unnecessary sewage works to treat the excessive waste experienced in flat-rate water systems. Metering, in many instances, reduces water consumption by one-third, and common sense demands coordination of interests, to the extent of reducing the volume of sewage to be treated at the sewage works.

Metering effects no especial savings in the cost of sludge facilities, which are based on per capita figures, but may secure substantial savings on all liquid treatment structures and processes, including sedimentation, activated sludge, trickling filters, sand filters and chlorination, with resultant decrease in operating costs.

—From a paper presented by ISAAC S. WALKER, consulting engineer, Philadelphia, Pa., before the Pennsylvania Sewage Works Association.

See "Sewer Financing in Massachusetts," in the 1933 Municipal Index

FERRIC CHLORIDE

"The disposal of sludge is the sewage disposal problem." That is why municipalities are now using Ferric Chloride. It is the most powerful de-watering agent known to condition sewage sludges for filtration, incineration or fertilizer manufacturing.

Cut the operating costs of your plant by modern sludge disposal methods. Mechanical filtration of digested sludge, through using Ferric Chloride, shows a remarkable saving when compared with sand beds.

CHEMICALS *for* MUNICIPAL PURPOSES

Ferric Chloride • Black Alum
Sodium Aluminate • Chlorine
Perchloron • Chloride of Lime
Caustic Soda • Alum

Est. 1850

TRADE MARK

PENNSYLVANIA SALT MFG. CO.

EXECUTIVE OFFICES: WIDENER BLDG., PHILADELPHIA, PENNA.

Do you mention THE AMERICAN CITY? Please do.

Collection and Disposal

Garbage, Ashes and Rubbish

Unusual Management of a Refuse Disposal Plant

IN Chesterfield, England, the Cleansing Superintendent has developed a disposal plant and organization which for economy and resourcefulness is reported to be second to none in England. Instead of salvaging material because it is available and then attempting to sell it, he studies possible products of his plant, and then goes out and creates a market for them. After this he begins actual salvaging work. The question of marketing is the main object, and for this reason Chesterfield is obtaining nearly twice the price for salvaged material as other cities, and even in depressed times no difficulty has been found in moving these products.

Adjoining the plant a warehouse has been built which on the inside looks like a high-class merchandising floor, containing the neatly stocked commodities that have been salvaged. Among the articles displayed are baled and graded waste paper, thousands of sorted and washed bottles, boiled rags of different grades, baled tins, copper, aluminum, brass, linoleum, cardboard cartons, wicker baskets, samples of cinders and fertilizers, and other articles—everything sorted, cleaned and graded. No new salvage unit is added unless personnel already required can be used to produce it or unless cost figures demonstrate that it more than pays for itself. Each type of salvage work is subject to cost analysis, and it is definitely known from month to month whether a process is proving profitable. Through this method the salvage work has been reduced to the lowest net unit cost of any in England. The small amount of refuse which is incinerated, amounting to about 25 per cent of the total brought in, also has value, for the residue is dumped in a rolling field owned by the city, now being rehabilitated as a recreation park. The principle of controlled tipping is followed and is so devoid of nuisance that 50 feet away children play on swings, unconscious that refuse is being disposed of so close by.

—From "Some Observations on Municipal Practices in European Cities," by Donald C. Stone, published by The International City Managers' Association.

Tractor Aids Refuse-Handling Problem

THE daily problem facing the Disposal Department in San Diego, Calif., is not only the collection and hauling of approximately 80 tons of city refuse, but its proper disposal at the dump. This problem has been met by the use of a single Cletrac crawler tractor, Model 15, which handles both the unloading of the trucks and the placing of the refuse on the dump following its unloading, to make room for the next arriving load.

Refuse is collected in low-bed trucks. Formerly four men were required for unloading these trucks when they arrived at the dump. The time of unloading averaged about ten minutes per truck, and four men were required to hasten the work. By an ingeniously designed dummy slide board with chain attached which is placed in the front end of the truck body, the unloading is now done by the tractor. The average time to unload is one minute per truck with this equipment. The tractor operator hooks on to the loose end of the chain with his machine and pulls the entire load from the truck. No other labor is required. This operation alone effects a saving of several hundred dollars per month in unloading cost.

As soon as the truck is unloaded, the refuse must be carefully spread. This is accomplished by the tractor, which is equipped with a bulldozer or backfiller. The material handled in this operation varies from bed springs to diamonds. This equipment handles it successfully.

D. A. MILLIGAN,
Engineer.

An Effective Rat Control Program

A SURVEY made by the United States Biological Survey in 1928 revealed that large quantities of the food manufactured, stored or transported in Tacoma, Wash., was contaminated by rats somewhere along the line before it reached the ultimate consumer. Under the leadership of Leo K. Couch, Rodent Control Leader of the U. S. Biological Survey, and his assistant, John Finley, a rodent control program was initiated in cooperation with the administration of the city of Tacoma. A local supervisor was employed, part of his salary being paid by the Federal Government, and part of it by the city.

City property was cleaned up first, and in the main city dumps 20,000 rats were killed with calcium chloride and poisoned baits during the first month. Later, more help was needed, and as the budget provided no additional funds, a system was worked out whereby business houses, docks, mills, etc., were serviced as often as necessary, and were billed in amounts ranging from 50 cents to $10 per month, depending on the costs.

The Government film, "How to Get Rid of Rats," was shown in ten theatres. Two hundred and twelve business properties are being serviced at the present time, and the outstanding feature of last year's work was the continued increase in the number of cooperators and the increase of cooperative funds. The last report of the U. S. Biological Survey states that the city officials are to be congratulated on the outstanding improved sanitary conditions of the entire city. City dumps always constitute the main harborage for rats in any city. The cooperative method worked out by the U. S. Biological Survey with the city officials of Tacoma should have the same success in any other city.

UNLOADING AND SPREADING RUBBISH AT THE SAN DIEGO, CALIF., CITY DUMP

1. Unloading a truck with a dummy slideboard pulled back by a tractor. 2. Spreading the refuse on the dump with a tractor and bulldozer

WINCHESTER SCHOOLHOUSE *Saved from Water Damage by* PROMPT ALARM *from Gamewell* SPRINKLER WATCHMAN

TOWN OF WINCHESTER
MIDDLESEX COUNTY, MASSACHUSETTS

HEADQUARTERS, FIRE DEPARTMENT
32-40 MT. VERNON STREET

DAVID H. DeCOURCY
CHIEF

The Gamewell Company
Newton
Massachusetts

Gentlemen:

In 1929 we installed one of your Master Fire Alarm boxes at our Senior High School, and connected it to the sprinkler system in the building thru your Sprinkler Watchman equipment.

On the morning of November 28, 1932 with 700 students in the building an alarm was received at fire headquarters at 8:37 o'clock. Simultaneously the fire alarm system sounded within the school causing the pupils to file out in an orderly fire drill manner. Reaching the scene before all the students had filed out, we found the sprinkler system had frozen during the zero weather the night before causing a pipe to burst in the new auditorium when the heat reached it shortly after the opening of school.

The instant alarm given by your Sprinkler Watchman connection enabled us to reach the school within a minute after the water flow started and to shut off the water before it spread around the auditorium. Only a small loss resulted, but had the water flow continued any longer, there would have been much greater damage.

This incident was a practical demonstration of the value of your Sprinkler Watchman in keeping down water loss. I have repeatedly recommended this protection for public and other buildings.

Yours very truly,

David H. DeCourcy.

Chief of Fire Department

THE good judgment of Fire Chief David H. DeCourcy of Winchester, Mass., in hooking up a schoolhouse sprinkler system with his fire department through a Gamewell master type fire alarm box — SPRINKLER WATCHMAN —saved his town thousands of dollars in water damage. And it brought his firemen to the school before the students had all filed out following the alarm. There is no better safeguard to life in sprinklered property than the Gamewell SPRINKLER WATCHMAN.

NRA MEMBER U.S. WE DO OUR PART

THE GAMEWELL COMPANY
NEWTON, MASSACHUSETTS
"A Box A Block"

Fire–Police–Safety

Items for Departments of Public Safety

Another Police Department Uses Radio to Fight Crime

THE Nassau County Police, with headquarters at Mineola, Long Island, has joined the growing list of law-enforcement agencies which are using radio to suppress crime. The 200-watt station WPGS went on the air in September.

The addition of the radio to the extensive telephone and teletypewriter systems used by the Nassau County Police gives this organization a communication system believed to be second to none in the country. The new radio system is used as a contact between headquarters and the most mobile of the organization's units—the motor patrol. When the station was placed in service, there were 34 police radio cars equipped with receiving apparatus, and it is expected that the number will be increased as municipalities within the county cooperate with the county police by installing receiving sets in the police automobiles.

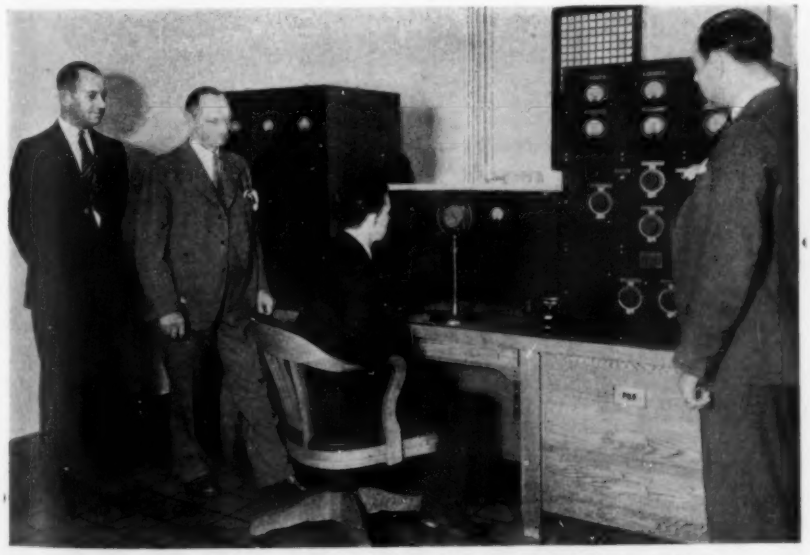
The transmitting equipment, designed by the Bell Telephone Laboratories and manufactured by the Western Electric Co., represents the latest developments in police radio equipment. The system consists of two principal units, the transmitter itself and the rectifier which furnishes power. The transmitter may be adjusted quickly and easily to any radio frequency assigned for police work. The rectifier, which draws its current directly from the electric power line, contains seven mercury-vapor tubes which furnish power to the parts of the transmitter.

The antenna is a type new to police radio systems. Instead of the familiar towers supporting wires between them, the antenna itself is a steel mast about 90 feet high. Although the Nassau County Police is the first police organization to have this type of antenna, the style is used for commercial broadcasting, with marked advantages.

Receiving sets have been placed in the patrol cars and also in the six precinct station houses. These are of Stromberg-Carlson make. They are super-heterodyne sets especially adapted to police work, designed to withstand vibration.

A survey of radio reception in the county was made before the installation of the transmitting equipment, and it showed that there were no "dead spots." Chief Skidmore says that subsequent tests with the new apparatus bear out the findings of this preliminary survey, as reception is good throughout the entire 20-mile radius patrolled by the Nassau County Police.

Supplementing the new radio system are extensive teletypewriter and telephone systems. Direct lines connect the telephone switchboards at the precinct offices at Merrick, Syosset, Mineola, Woodmere, Valley Stream and Manhasset with headquarters. In the teletypewriter system circuits permitting two-way writing by wire connect headquarters with the precinct offices and also with police headquarters in seven villages, with Troop K barracks of the New York State Police at Hawthorne, Westchester County, and with the headquarters of the New York Police in Centre Street.



THE NEW RADIO STATION WPGS OF THE NASSAU COUNTY POLICE
Standing (left to right), Theodore A. Bedell, Clerk of the Board of Supervisors of Nassau County; Abram W. Skidmore, Chief of Police, and Captain William K. Allen, in charge of the new radio station

Applying Lessons from Fires to Prevent Repetition

FOLLOWING up a fire after it has occurred is frequently the most effective fire prevention work which can be done. From the experience of every fire some lesson should be learned which can be applied to prevent its repetition.

A great many fire prevention committees study tabulations of fire causes prepared for them by the fire department in order to determine what items should be given attention as most important by the committee. Several local committees have developed a routine of reviewing at committee meetings the details of all large fires which have occurred since the previous meeting and taking appropriate follow-up action in each case.

The Roanoke, Va., Chamber of Commerce attempts to see that the lessons of every fire are applied to the prevention of other like ones by sending a letter to every person who has a fire, requesting that he call the attention of his neighbors to the supposed cause of the fire and ask them to make a very thorough examination of their premises to see that all hazards are removed or corrected. This plan has been carried out over a period of years long enough so that Chief Mullins of the Roanoke Fire Department can report a marked downward trend in the number of fire calls.

The fire prevention committee in Tacoma, Wash., sends the following form letter to all persons having fires:

TACOMA CHAMBER OF COMMERCE
TACOMA, WASHINGTON

The Tacoma Fire Department recently had a call for aid in extinguishing a fire on your property, and as the efficiency of the Fire Department is reflected in low insurance rates, we are requesting you to write a letter to our committee advising us if, in your opinion, the Fire Department was prompt in their response and if everything possible was done to prevent property loss after they arrived at the scene of the fire.

If you have a complimentary report to make we will be pleased to receive it; on the other hand, if you have any criticism to make, the report will be equally valuable and we will appreciate your forwarding us the details.

Yours very truly,
F. J. Walsh, Secretary,
Fire Prevention Committee.

This check-up is valued by members of the Fire Department, as it brings them appreciative words in most cases. More important, however, is the stimulus to craftsmanlike fire fighting.

The Fire Prevention Division of the Cleveland Safety Council has recently organized an Arson Committee to assist in keeping the investigation of fires from impairment by political influences.

—From the October, 1933, bulletin of the Chamber of Commerce and Safety Council Section of the National Fire Protection Association.

SAFETY is engineered into the Harley-Davidson Police Motorcycle.

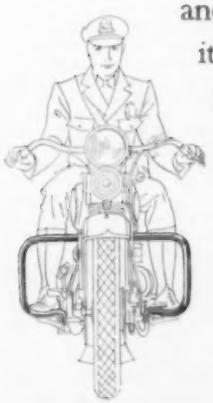
Millions of miles of police service are back of the features which make this the safest motorcycle ever built for police work.

Low center of gravity, correct wheelbase and balance, and perfected spring suspension are basic reasons for its amazing steadiness at all speeds and on all road surfaces. And the police rider's safety and comfort are doubly important because they increase his efficiency.

There are more Harley-Davidsons in police service than all other makes combined. May we show you why?

A postcard request will bring you some very interesting literature.

HARLEY-DAVIDSON MOTOR COMPANY
DEPARTMENT M MILWAUKEE, WIS.



Safety Guard
A Harley-Davidson feature that gives real protection to the rider in case of sideswipe or other accident. Weight of motorcycle cannot fall on rider's legs.

HARLEY-DAVIDSON

The Police Motorcycle

When you write for that catalog, kindly mention THE AMERICAN CITY

NOVEMBER, 1933

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The American City

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New York

35 Cents, $2 a Year

Lest We Try to Drink Ourselves into Law-Abiding Prosperity

THE naive faith of many victorious opponents of the "noble experiment" is about to be tested in the cup which both cheers and inebriates. The persistent propaganda against the Eighteenth Amendment has culminated in a final burst of speed for whose aftermath the forces of repeal are ill prepared. A traffic which for ages has bred poverty and lawlessness is now trustingly restored as a means of filling our pockets and emptying our jails.

It has been left to a consistent and generous supporter of the cause of temperance—John D. Rockefeller, Jr.—to finance and make available the most comprehensive and constructive suggestions yet offered for solving our new problems of rational liquor control.

In the book "Towards Liquor Control," published last month and listed on page 75 of the present issue of THE AMERICAN CITY, Mr. Rockefeller's foreword quotes Senator Capper's apt remark that "We may repeal Prohibition, but we cannot repeal the Liquor Problem." Mr. Rockefeller continues:

"If carefully laid plans of control are not made, the old evils against which prohibition was invoked can easily return. Some months ago I came to the conclusion that as a step toward such control a study of the practice and experience of other countries would be of genuine service. The liquor problem is a world-wide problem and has been wrestled with by many nations. A program of action based on intimate knowledge of their successes and failures, as well as on experience in this country, appeared to me to be a contribution to the thinking of the American people on this subject which might be welcomed. I therefore asked Mr. Raymond B. Fosdick and Mr. Albert L. Scott to organize such a study, which is here offered to the public. . . .

"The report regards liquor taxation, as it should be regarded, primarily as a helpful factor in forwarding the objectives of the abolition of lawlessnes and the focusing of all the forces of society upon the development of self-control and temperance as regards the use of alcoholic beverages; and only incidentally as a means of producing income.

"I am also greatly impressed with certain principles in the report, which seem to me of profound importance in any present or future effort to deal with the liquor problem. One of them is that law must always be the articulate organ of the desires of living men. Men cannot be made good by force. In the end, intelligent lawmaking rests on the knowledge or estimate of what will be obeyed. Law does not enforce itself. The Eighteenth Amendment embodied an ideal, but it could succeed only with the support of public opinion. The mistake involved in its passage was the failure to foresee that unhappily it might not always have that support.

"Another principle which the report develops is that only as the profit motive is eliminated is there any hope of controlling the liquor traffic in the interest of a decent society. To approach the problem from any other angle is only to tinker with it and to insure failure. This point cannot be too heavily stressed."

In their preface to the book the two authors give special credit to a group of collaborators, including Leonard V. Harrison, Luther Gulick, Everett Colby, Chauncey Belknap, A. LeRoy Chipman, Frank A. Ross, Frank B. Amos, Miss Elizabeth Laine, Joseph F. Shadgen, Theodore Abel, Vittorio Racca, Mrs. Margaret G. Schneider, and Alexander L. Radomski.

The rest of this article comprises excerpts from Chapters I and VII:

Toward Liquor Control

Out of the mass of opinions obtained it is possible to set down a few definite principles behind which, it can be said with reasonable accuracy, a substantial degree of public support exists. We have adopted these principles as our own and they have served as guides in the writing of this volume and in the preparation of our recommendations. Briefly, they are as follows:

1. At all costs—even if it means a temporary increase in consumption of alcohol—bootlegging, racketeering and the whole wretched nexus of crime that developed while the Eighteenth Amendment was in force must be wiped out. The defiance of law that has grown up in the last fourteen years, the hypocrisy, the break-down of governmental machinery, the demoralization in public and private life, is a stain on America that can no longer be tolerated. The American people are definitely aroused in a determination to clean up this source of corruption and to reestablish the integrity and dignity of the law.

2. Wide areas of the public are unconvinced that the use of alcoholic beverages is in itself reprehensible. That there is grave peril of immoderate use is unanimously conceded. In respect to every human desire, intemperance has always been the chief frailty of mankind. But while hundreds of thousands of people are by preference and practice teetotalers, public opinion will not support the thesis that the temperate use of alcohol is inconsistent with sobriety, self-control, good citizenship and social responsibility. More than that, many people believe that such moderate use can be made an agreeable phase of a civilized mode of living.

3. The saloon, as it existed in pre-prohibition days, was a menace to society and must never be allowed to return. Behind its blinds degradation and crime were fostered, and under its principle of stimulated sales poverty and drunkenness, big profits and political graft, found a secure foothold. Public opinion has not forgotten the evils symbolized by this disreputable institution and it does not intend that it shall worm its way back into our social life.

4. Despite the reaction from the Eighteenth Amendment,

America is in no mood to stand any aggressiveness on the part of the brewers, the distillers and the liquor trade generally. The memory of their campaigns against temperance, of their corrupt legislative activities and of their insolent intrusion into our political life in the days before prohibition, is still alive. Any indication that they are once more pushing their business in violation of decent social standards will bring the pendulum swinging back.

5. Public opinion is gratified by the record of sobriety that has attended the return of beer. It is distinctly apprehensive over the prospective legalized return of spirits. For America aspires to be a temperate nation. It has a passionate desire that its young people shall be protected against the greedy commercialization of the liquor trade and the pitfalls of intemperance. It dreads the hazards and inefficiencies that attend immoderation. It is fully prepared to take drastic steps, if, as a result of the present attitude of toleration, conditions should once more get out of control.

6. America is inclined to believe that there is some definite solution for the liquor problem—some method other than bone-dry prohibition—that will allow a sane and moderate use of alcohol to those who desire it, and at the same time minimize the evils of excess. There is no unanimity of opinion as to what that solution shall be, but the people at the moment are in an adventurous mood. A new philosophy of change is in the air, and political ideas are now being put into effect which were unthinkable even a decade ago. The question is asked: Why should we follow the old pre-prohibition route? Why is it not possible to strike out on a fresh trail? If in relation to every other business new social and political controls are daily being devised, why in relation to this liquor business should we not create a new technique, a new method, by which it can be brought within the compass of what the public really desires?

The Conclusions of the Report

This report attempts to find an answer to this type of question and our conclusions may be briefly summarized as follows:

1. State-wide, bone-dry prohibition will prove unsuccessful in controlling the problem of alcohol, unless such a system has behind it overwhelming public support. Even then it will tend to carry in its trail the hypocrisy and lawlessness which marked the national experiment.

2. The experience of every country supports the idea that light wines and beers do not constitute a serious social problem.

3. While many states will doubtless follow the license method in the control of beverages of higher alcoholic content, this method contains a fundamental flaw in that it retains the private profit motive which makes inevitable the stimulation of sales.

4. Wide experience in many countries indicates that the best approach to the problem of heavier alcoholic beverages is through state control. By state control we mean specifically a system by which the state, through a central authority, maintains an exclusive monopoly of retail sale for off-premises consumption. This authority determines prices, fixes the location of its stores, controls advertising, and in general manages the trade in such a way as to meet a minimum, unstimulated demand within conditions established solely in the interests of society. (See page 43 of this issue.)

5. The primary objective of taxation should be social control, not revenue. Taxes should be levied not with the idea of filling the public treasury at whatever cost to public morality and efficiency, but as a method of reducing the consumption of alcohol.

6. Education in its broadest sense has a greater part to play in creating a sober nation than has legislative enactment. Temperance lies in the character, standards and self-discipline of individual men and women. Education is a slow process, but it carries a heavier share of the burden of social control than does legal coercion.

Taxation

The effort to clear the land of the illicit liquor business and to set up reasonable and effective control can be immeasurably hindered or greatly advanced by the kind of tax system now to be established.

Tax rates upon the liquor trade should be viewed as a whole, and the objective of taxation should be neither revenue, primarily, nor punishment, but social regulation. As a means of limiting consumption, the price of beverages of high alcoholic content may be considerably increased through taxes as soon as, but not before, the illicit trade is well under control.

To make liquor taxes simple, effective and consistent, all manufacturers' taxes should be levied exclusively by the Federal Government and correlated with import duties. All retail taxes or licenses should be levied by the states. There should be no local levies. The Federal Government might well distribute part of the manufacturers' taxes back to the states, while the states might hand part of the license fees and profits taxes back to the communities.

To avoid shifting the entire tax burden to the consumer, the principle of profits taxation should be applied to both the manufacturers and the distributors of alcoholic beverages through the levy of a special liquor profits tax.

The tax rates applied to the various kinds of alcoholic beverages should be established upon a rational basis by varying the tax rate per gallon with relation to the alcoholic content, the price, the undesirability of consumption and luxury use.

In harmony with these suggestions, we present a simple and rational schedule of taxes to be levied by the Federal Government and by the states in cooperation. The basic excise rates are $3 a barrel for 3.2 per cent beer, 40 cents a gallon for natural wine, and $3 a gallon for standard 100 proof spirits. In order that there may be no misunderstanding with regard to these proposals, we wish to repeat that these are submitted as initial tax rates to be modified in the future to meet changing conditions. It is esimated that these taxes will produce, together with the profits taxes suggested, approximately $700,000,000 a year.

Revenues from liquor taxes or licenses should not be earmarked for special purposes, such as schools, old-age pensions, hospitals and charities. The revenues should go directly into the general funds.

Although liquor prices are influenced by many factors other than taxes, it seems to us that the tax program which we have suggested will make possible a reasonable price level for alcoholic beverages. The prices for beer will probably be slightly reduced by the reduction of excise taxes and of flat licenses and the reliance on profits taxes which cannot normally be passed on to the consumer. Ordinary wine could be merchandised from $1.50 to $2.50 a gallon. Whiskey, gin and other spirits would probably sell at $1.50 and up per quart. With reasonably efficient law enforcement these prices will, we believe, make it unprofitable and difficult for organized bootlegging to continue. Though the probable price for spirits is, in our judgment, lower than it ultimately should be from the standpoint of limitation of consumption, this can be corrected by increasing the tax rates as soon as the illicit traffic has been substantially eliminated. Eventually there may be a greater differential between the beverages of low alcoholic content and those of high content.

From the standpoint of social justice the plan here recommended is clearly a marked step in advance. It lightens the taxes which fall on those with little income and through its profits tax features reaches a large new tax-paying capacity. The suggested plan rests less heavily on regressive consumption taxes and more heavily on profits taxes. At a time like the present when the country is endeavoring to increase the total share of the national income going to the lower income groups, it would seem rational to make our taxes consistent with this objective.

We are convinced that the application of these principles of taxation is essential to the successful handling of the new problems created by the repeal of the Eighteenth Amendment.

Maintenance, Reading and Billing for a Metered Water System

By J. S. STROHMEYER
Distribution Engineer, Bureau of Water Supply, Baltimore, Md.

THE Bureau of Water Supply is the successor of the Baltimore Water Co., a corporation organized in 1804 for supplying the city of Baltimore with water. The company's property was purchased by the city in 1859, and from that time it has been operated by the municipality. The report of the Water Board for 1869 shows that in March of that year 29 water meters of the duplex piston type were installed, apparently the first meters following the municipalization of the plant. The growth of metered water supplies was slow, and it was not until 1918 that the Bureau had approximately 4,300 metered services, which were all installed on industrial and commercial supplies. Following the purchase of the former private water companies, the increase in the number of metered water-supply services was rapid, numbering 55,558 on January 1, 1933, located in Baltimore City and Anne Arundel and Baltimore Counties.

The reading and maintenance of water meters are done by the Bureau of Water Supply, and the billing and collecting of accounts by the Bureau of Receipts.

Maintenance of Meters

The organization for the maintenance of these meters is centered at the Mt. Royal maintenance headquarters under an assistant maintenance engineer, who reports directly to the Engineer of Maintenance. The personnel in the shop consists of a junior civil engineer in charge; a junior clerk for keeping records and filing; a handyman for testing; a meter repairman, and three laborers. The laborers disassemble the meters, clean the parts for the meter repairman, help in testing, and do other miscellaneous shop work.

The meters are tested in the shop on three test benches. The 5/8-inch, 3/4-inch and 1-inch meters are tested in series on No. 1 bench. The 1½-inch and 2-inch disc and compound meters are tested singly on another bench, and the larger size meters, from 3-inch to 12-inch, are tested on the third bench.

The field force consists of two crews with trucks, and two handymen, each with a Ford truck. Each crew consists of a meter repairman and a laborer. The repairmen make all the major repairs, and are supervised by the junior engineer in charge of the repair shop. It has not been found economical to make field repairs on meters 2 inches or less in size. Such meters are removed, and repaired in the shop, being replaced by meters of similar size. The handymen and truck are used on general work such as replacing broken registers and glasses, installing small meters, removing meters for a vacancy, delinquency, or replacing for repairs. In making repairs to the larger size meters, 3-inch or over, the part of the meter requiring replacement is furnished by the repair shop and is assembled in the field.

Water meters 2-inch or larger in size are read at two-week intervals, and a close check is kept on any falling-off or wide variations in registration as an indication of the need for repairs. The books containing these accounts are called large meter books and are closely scrutinized in the office of the Meter Division for such indications. It frequently happens that a decrease in registration indicates only a decrease in consumption.

The junior civil engineer in charge of the meter shop has charge of these inspections, and by investigation or testing the meter determines whether the decrease in registration is normal or is caused by the failure of the meter.

The total maintenance expense of the Bureau from 1927 to 1931, inclusive, was about $2,294,000, of which $250,000 was for meter maintenance, representing about 11 per cent of the total. As the cost records for meter maintenance include both the repairs to meters and to meter vaults, the percentage of meter maintenance to the total maintenance expense cannot be exactly ascertained. The ratio of the expense and maintenance of meters and meter vaults to the total operating and maintenance expense of the Bureau for the same period of time was 4.3 per cent of the total.

From the repair shop records, the annual average cost of repairs to 5/8-inch or 3/4-inch meters, representing 92 per cent of the total number of meters in service, was 22 cents per meter in service. This repair cost is the average for the six-year period, 1927 to 1932, inclusive. The records also show that the cost of repairs to five 5/8-inch meters installed 30 years ago has amounted to an average of 18 cents per meter per year. The combined registration of these meters was almost 750,000 cubic feet, or an average cost of repairs of approximately $0.035 per 1,000 cubic feet registered. Also, on five 3/4-inch meters that have been in service for 32 years, the average cost of repairs amounted to $0.135 per year.

Meter Reading

When an application is received for a water-supply service, it is sent to the Service Division for inspection as to the location of the service in the field; then to the Maintenance or Construction Division for the installation of the service and meter yoke. Generally the meter is not installed on 5/8-inch or 3/4-inch services until requested by the consumer. The installation can be made within four hours after receipt of notice. In some cases, however, the small meters are installed at the time of installation of the service.

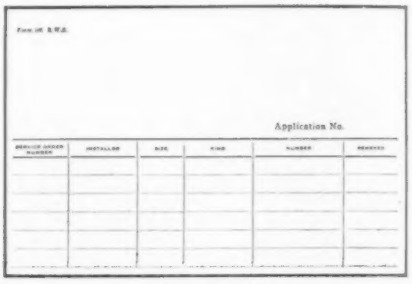
After the water-supply service and meter are installed, the application is forwarded to the Meter Division and the new account is opened. It is then given an account number and is routed in the meter reader's handbook. An authorization is sent to the Bureau of Receipts to make

BUREAU OF WATER SUPPLY
NEW WATER SUPPLY SERVICE ORDER

Application for Water Supply Service

BUREAU OF WATER SUPPLY
METER ACCOUNTS DIVISION
No 3683
REVISION OF METER ACCOUNTS

Authorization sent to the Bureau of Receipts to make Addressograph Plate

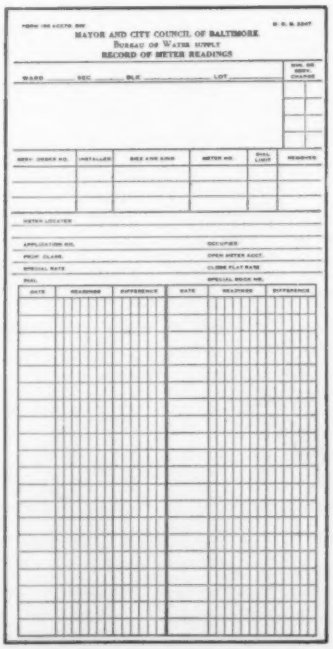


Application No.

File Card

CITY OF BALTIMORE
BUREAU OF WATER SUPPLY
RECORD OF METER READINGS
METRO. MAIN—BALTIMORE COUNTY

Meter Reader's Handbook Page
Five colors used: Yellow for city; Green for Baltimore County; White for Metropolitan District; Pink for Anne Arundel County; and Orange for special accounts such as hospitals, charitable institutions and private schools



MAYOR AND CITY COUNCIL OF BALTIMORE
Bureau of Water Supply
RECORD OF METER READINGS

Ledger Card, placed in the Meter Division files and used when the meter book is inaccessible

MAYOR AND CITY COUNCIL OF BALTIMORE
Bureau of Water Supply

INSTRUCTIONS TO METER READER

Use the following operation numbers for reporting complaints, in the "Remarks" column on the back of meter page.

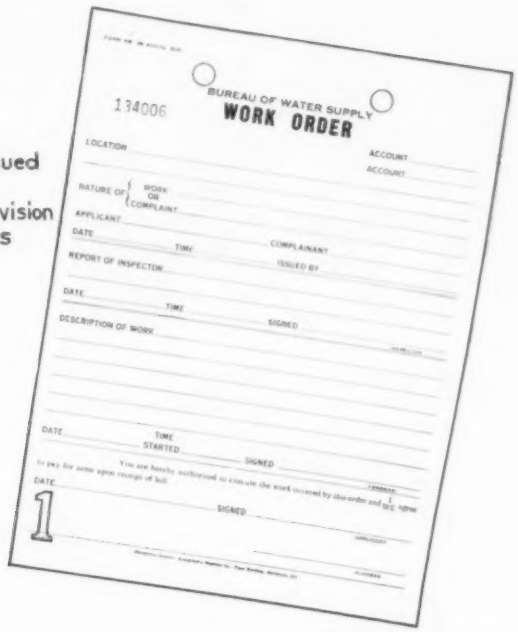
1 Not registering
2 Defaced dial
3 Hand off dial
4 Dial loose
5 Test hand off
6 Glass broken
7 Reverse meter
8 Meter Coupling leaking—inlet
9 Meter Coupling leaking—outlet
10 Broken meter
11 Large nut on plate—Give kind of plate
12 Key will not turn nut—Give kind of plate
13 Plate broken
14 Loose plate (Warped)—Give kind of plate
15 Broken Vault
16 Remove space pipe—install meter
17 Vault below grade
18 Vault above grade
19 Raise meter in vault
20 Cannot locate vault
21 Move meter outside
22 Pump out and mud
23 Clean out vault
24 18x4 dome plate—cannot raise
25 Meter covered by _____
26 House vacant
27 No one home
28 Read high—O. K.
29 Read low—O. K.

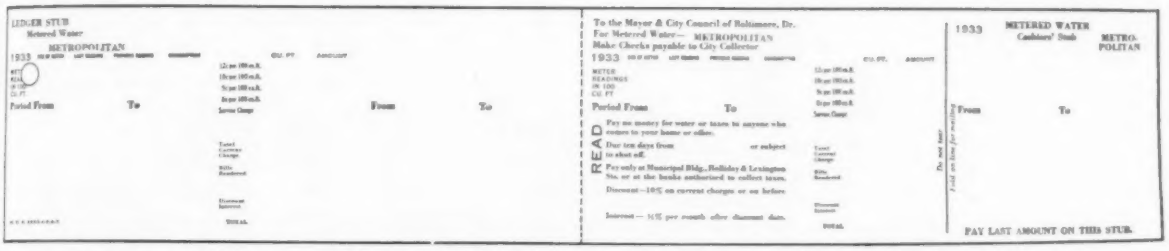
List of Conditions Reported by Meter Readers

BUREAU OF WATER SUPPLY
RE-READ AND REPORT
Acct. No.
Date
Name
Address
Meter Located
Inch
Meter No.
Date
Reading
Information Required
REPORT OF INSPECTOR
Date
Reading
Change Name
Change Address
Inch
Meter No.
Remarks:
Inspector

Re-Read Sheet

Work Order Issued to Maintenance Division for Repairs


134006
BUREAU OF WATER SUPPLY
WORK ORDER
LOCATION
ACCOUNT
NATURE OF WORK OR COMPLAINT
APPLICANT
DATE
TIME
COMPLAINANT
REPORT OF INSPECTOR
ISSUED BY
DESCRIPTION OF WORK
DATE
TIME STARTED
SIGNED
DATE
SIGNED
1

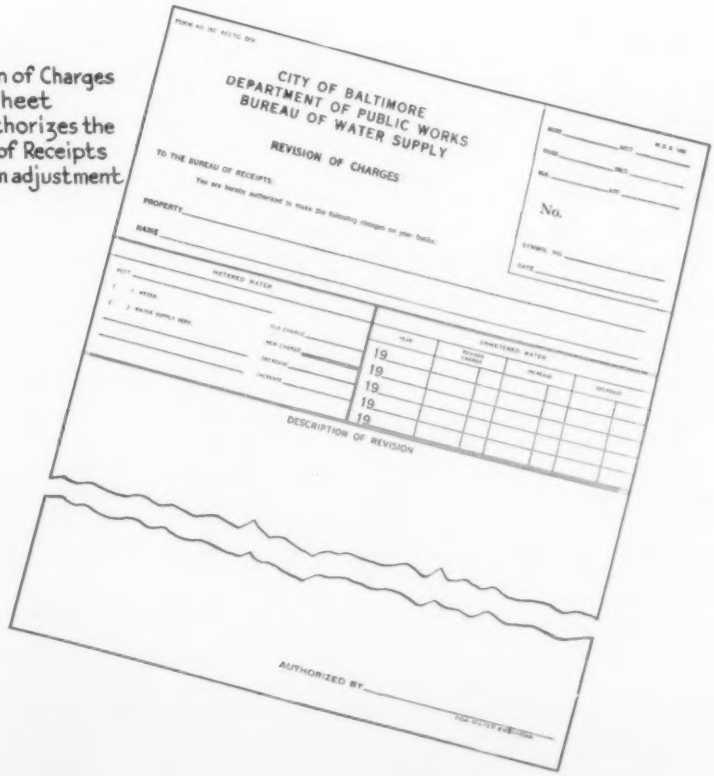

LEDGER STUB
Metered Water
METROPOLITAN
1933
Period From
To
From
To
To the Mayor & City Council of Baltimore, Dr.
For Metered Water— METROPOLITAN
Make Checks payable to City Collector
1933
METER READINGS
CU. FT.
AMOUNT
Period From
To
READ
Pay no money for water or taxes to anyone who comes to your home or office.
Due ten days from or subject to shut off.
Pay only at Municipal Bldg., Holliday & Lexington Sts. or at the banks authorized to collect taxes.
Discount—10% on current charges on or before
Interest— ½% per month after discount date.
Fold on line for meeting
Do not tear
1933
METERED WATER
Cashiers' Stub
METROPOLITAN
From
To
PAY LAST AMOUNT ON THIS STUB.

Consumer's Bill, Ledger, and Cashier's Stubs, Issued in five colors for different rate classifications

BUREAU OF WATER SUPPLY
INSPECTION AND REPORT SHEET
No. 6990
Acct. No.
Date
Name
Address
Meter Located
Meter No.
Inch
Date
Excessive Bill
Read
REPORT OF INSPECTOR
Date
Reading
Meter No.
Inch
Condition of Meter
Condition of Glass
Interior Leakage
Underground Leakage
REMARKS ON OTHER SIDE
Inspector

Inspection Sheet for Investigating Complaints

Revision of Charges Sheet
This authorizes the Bureau of Receipts to make an adjustment


CITY OF BALTIMORE
DEPARTMENT OF PUBLIC WORKS
BUREAU OF WATER SUPPLY
REVISION OF CHARGES
TO THE BUREAU OF RECEIPTS:
You are hereby authorized to make the following changes on the books.
No.
PROPERTY
NAME
METERED WATER
UNMETERED WATER
DESCRIPTION OF REVISION
AUTHORIZED BY

an addressograph plate on which appear the consumer's name, address and meter account number. The addressograph plate is then filed in its proper rack and is used quarterly for billing. From this same plate an impression is made on a handbook page, a ledger card and a file card, all three being forwarded to the Meter Division. The Meter Division notes on the handbook page and cards the size, kind and number of the meter, the date of installation, the reading of the meter when installed and other information which may help the reader to locate the meter on the premises. The account is then ready for reading and billing.

The meters are read quarterly by men who have passed a complete competitive meter reader's examination and are certified to the Bureau as meter readers by the City Service Commission. After their selection, the meter readers are given an intensive course of instruction in the meter repair shop, so that they can recognize the different types of meters and registers and be able to discern defective or non-registering meters.

Each reader's equipment consists of a meter reader's hammer, a flashlight, and a 1-inch paint brush which is used to clean the glass register cover. The meter books contain from 80 to 260 accounts, depending on the area covered. Each book represents one day's work.

The reader is required to record the reading of the meter, and make the extension on the handbook page. If the meter shows very little or no registration from the previous reading, the reader is required to ascertain whether or not the meter is registering, by requesting some one on the premises to turn on the cold water faucet and by observing the test hand on the meter. If the meter is not registering, a notation is made on the handbook page. The reader is instructed to report any unusual condition or defect that he may find in the meter, meter vault or meter cover, noting the condition on the handbook page.

As an aid to the meter reader, there is inserted in each book a list of conditions that are to be reported, each one opposite a number. There are 29 such conditions, and noting the number on the page keeps the book neater and helps the reader. For instance, No. 1, "meter not registering"; No. 6 "broken glass"; and No. 27, "no one at home."

Upon completion of the book the reader is through for the day. The book is brought into the office the following day, and the reader receives another book for the current day. When the book is returned to the office, it is referred to a clerk who checks the extensions on each account, and in cases where an abnormally high or low consumption is recorded, the reader not having fully ascertained any cause for this unusual consumption, a re-read sheet is made up by the clerk to be sent out and read by an inspector, who makes extensive efforts to locate the cause of the abnormal or subnormal consumption. Also, the clerk notes the defects reported by the reader and issues a work order on the Maintenance Division for the correction of the condition.

When the re-read sheets are returned they are entered in the handbook, and it is ready for billing. Before submitting the book to the Billing Department of the Bureau of Receipts, the readings and extensions on the handbook page are checked and copied on a ledger card which is a duplication of the handbook page. This card is filed, insuring the Meter Division of a duplicate record which can be referred to when access to the handbook is unavailable; or in the event the book is lost, it can be duplicated. Upon the completion of the billing by the Bureau of Receipts the book is returned to the Meter Division, where it remains until the next quarterly reading.

The Meter Division keeps a card index of all meter accounts, which are filed alphabetically by street names and numerically by house numbers. On the card is an impression of the addressograph plate and the size, kind, and serial number of the meter. This card file is used to locate an account in the handbook.

The average number of daily meter readings per man is 144. Should the city become entirely metered, this average would materially increase, and the cost per reading would be proportionately reduced.

The following comparative statement shows the quarterly cost of reading a meter account for the years 1929 to 1932, inclusive. This cost includes expenses for salaries, transportation, and miscellaneous expenses appertaining to meter reading, but does not include overhead and office expense:

Year	No. Metered Services	Quarterly Reading Cost per Account	Decrease
1929.....	46,834	$0.1071	
1930.....	50,728	.1043	.0028
1931.....	53,708	.1041	.0002
1932.....	55,558	.1026	.0015

This table shows that the cost has been decreasing each year. The cost of reading 17,464 meters during 1922 was $0.165 per quarter. Incidentally, the number of meters read daily per reader has increased from 93 readings in 1927 to 144 in 1932. This increase in daily readings is the result of the large increase in the number of meters installed in meter vaults, the increasing number of metered services each year, and the re-routing of the meter accounts in the books.

Billing the Consumer

The cardboard form is 3½ inches x 18 inches and is perforated in the center, forming two cards each 3½ inches x 9 inches. This form is passed through the addressograph machine, and after the consumer's name, address, and account number are stamped on it three times, it is ready for the billing on two Underwood billing machines. The billing machine operators average about 350 bills daily per machine. These operators type on the form, which is folded on the perforation, the date of the meter readings, size of meter, extension, any delinquency, and total amount of bill. This information is duplicated by carbon paper.

The billing machine gives the total of the consumption and the amount of revenue for each book so that the revenue can be checked. This revenue is compared with that of the previous quarter for statistical purposes. After the bill has been typewritten, the ledger stub, which is one-half of the form, is torn off and used as a customer's ledger, being filed in the Bureau of Receipts to correspond with the meter handbook and page. The other half, consisting of the consumer's bill and cashier's stub, is mailed to the customer. When making remittance, the consumer tears off the cashier's stub and mails it with his check, keeping the bill. If the remittance is made personally, the bill is receipted and returned to the customer, the cashier's stub being retained. The receipted cashier's stub is posted to the customer's ledger at the close of each day.

Payment may be made at the Municipal Office Building or at the banks authorized to collect taxes. The average time between the reading of the meter and the receipt of the bill by the customer is ten days.

Five different-colored bills are used, designating the respective rates applicable to consumers in Baltimore City, two rates in the Baltimore County Metropolitan District and Anne Arundel County, and a special rate for hydraulic elevators, charitable institutions, hospitals, etc.

Handling Complaints

Complaints are referred to the Meter Division, where they are noted on forms and forwarded to inspectors. Each complaint is investigated by reading the meter, noting the condition of the dial and glass, and observing whether there is any interior or exterior leakage. After these observations are made and the results recorded, the form is returned to the office and a letter is written to the consumer informing him of the disposition of the complaint. If an error is made affecting the total of the bill, a Revision of Charges sheet is sent authorizing the Bureau of Receipts to make the correction and send to the consumer an adjusted bill.

The Water Meter Is an Indispensable Servant of the Community

For the past half-century the water meter has played a very important part in the constantly improving technique of water-works operation. In the face of early indifferences and adverse propaganda, the number of meters has increased continuously until the meter has become an almost indispensable servant of every community having a public water supply. The Meter Division of the city of Baltimore has made substantial progress in the efficient handling of its meter accounts, and while there is room for much more improvement, it is felt that progress is being made in the right direction.

ACKNOWLEDGMENT.—From a paper presented before the Four States Section of the American Water Works Association.

How Shall Breweries Be Zoned?

To the Editor of THE AMERICAN CITY:

IT was with a great deal of interest that I read in your September issue (page 62) the short comment on breweries and distilleries by Edward T. Hartman.

It might be of interest to you to know the manner in which we treat breweries under our county zoning ordinance. We recently amended our Section 8½ Zone M-1 (Factory) regulations to permit breweries. The section in part reads:

"No building, structure, improvement or premises shall be used, and no building, structure or improvement shall be erected, constructed, altered or enlarged in Zone M-1 which is designed, arranged or intended to be used for any purpose other than the following:

"1. Any use permitted in ones R-1, R-2, R-3, R-4, C-1, C-2, C-3.

"2. Cabinet making, metal working shop, lumber yard, storage warehouse, breweries . . . . [and a number of other uses]."

And then we say,

"any similar enterprise or business enterprises or businesses which in the opinion of said Regional Planning Commission are not more obnoxious or detrimental to the welfare of the particular community than the enterprises herein in this sub-section enumerated; provided, however, that no business, enterprise, or use shall be permitted in said Zone M-1 which produces, causes or emits any dust, gas, smoke, noise, fumes, odors, or vibrations which are or may be detrimental to other property in the neighborhood or to the welfare of the occupants thereof."

We believe this last paragraph catches them, and we can point to several cases where these uses have been permitted, yet upon starting operations they caused annoyance, and we have been successful in either eliminating the nuisance or else eliminating the business entirely from the district. The same would hold true with breweries.

After all, it is not the type or name of a particular industry that altogether governs, but, rather, the manner in which it is operated.

Many of our large drive-in markets which are allowed in the commercial zone can become more obnoxious than a brewery, owing to the large amount of trucking, open storage of boxes and crates, and, worse than either of these, the parking of automobiles upon contiguous residential streets by the patrons of the market, a thing which would not happen with a brewery.

So I do not entirely agree that, in the present day and age of more modern methods of production, breweries should be automatically relegated to the heavy industrial zone.

The comments of your readers on this solution will be very much appreciated.

A. E. WILLIAMSON,
Zoning Engineer, Regional Planning Commission, Los Angeles.

Receivership for Tax Delinquents

NEW JERSEY has followed the leadership of Cook County, Illinois, in adopting a receivership plan for shirking taxpayers. The new law, signed last month by the Governor, provides that receivers may be appointed for income-producing properties more than six months in arrears in taxes, for the purpose of collecting sufficient income from the property to pay taxes.

It is believed that the legislation will result in many property owners paying their taxes to avoid having a receiver take control. Some have been following the practice of paying other bills and letting taxes go unpaid, since there was no way they could lose their property for that cause within two years. Under the new law the municipal tax collector, with approval of the local governing body, can apply to the Court of Chancery to be appointed an ex officio receiver for the purpose of collecting sufficient income from the property to satisfy taxes and receivership costs. He also may be authorized to make any expenditures out of the money he collects that will increase the income from the property.

The act does not apply to private dwellings from which no income is received, nor to farm property of a similar category. The act will continue in force for three years and does not supersede any existing remedies for tax delinquency. As a safeguard against incompetent management, first mortgages are to be designated as receivers in the case of mortgaged property. In order to avoid the chances of petty patronage, no fees are allowed for receivers.

The law should prove a useful and powerful weapon for municipalities to direct against deliberate tax dodgers who have taken advantage of leniency provisions intended for those really unable to pay taxes. Experience in Chicago, where such a plan was first put in operation, indicates that it is proving satisfactory. Thousands of property owners paid up their back taxes before municipalities could put in receivers.

A somewhat similar proposal was recently advanced by the New York State Commission for the Revision of the Tax Laws.

MABEL L. WALKER,
Executive Secretary, General Welfare Tax League.

Bituminous Macadam Surfacing Practice in Maine

By ERNEST L. MERRILL
Assistant Engineer, Maine State Highway Commission

WITH a road mileage of about 22,500 miles and a population of only 800,000, it is imperative that the state of Maine find a type of road which is suitable for a large part of its primary system and which will cost considerably less than concrete or heavy macadam pavements, although, of course, there are sections where the traffic is such that these heavier pavements are necessary. There is a considerable mileage where the traffic census shows a fairly large number of vehicles per day with a small percentage of trucks, and it is on this mileage that a lighter type of pavement is ample.

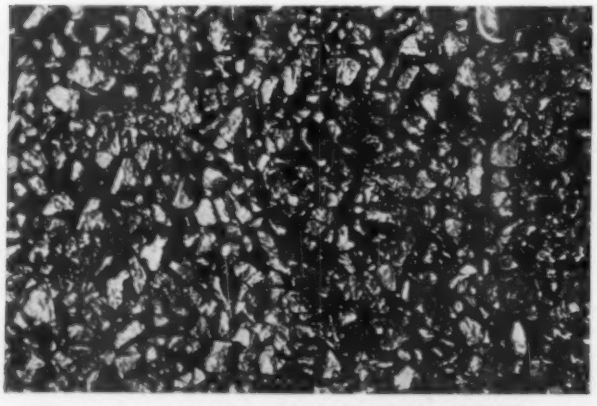
After experimenting considerably during the past three years, very satisfactory results have been secured with a 3-inch compacted thickness of emulsified asphalt penetration, with the crushed stone base omitted. There are very few available trap-rock deposits in Maine, and it is necessary to use local stone of fairly soft granite. Emulsified asphalt adapts itself readily to this type of stone, since no particular harm is done if the stone breaks up slightly under the roller, for the asphalt will readily penetrate and coat all of the stone. The construction season is quite short, and the use of this material allows work to continue quite late in the fall with good results.

Preparation of Grade

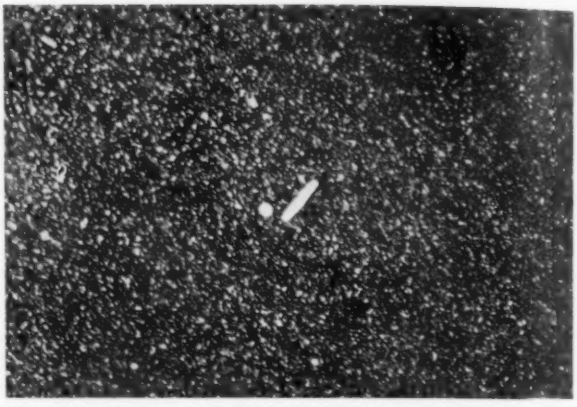
In constructing an unimproved section, the road is graded and a bank-run gravel base put in, from 12 to 18 inches compact depth, according to the nature of the subsoil. After the base is brought to grade and compacted, it is given a surface treatment of tar of from 0.5- to 0.6-gallon per square yard in two applications. Whenever possible, it is allowed to lie over during the winter so that fills will be thoroughly compacted and the base well consolidated.

In the case of an old gravel road which is wearing out, sufficient gravel is put on to bring it up to a true cross-section, and any weak section is strengthened and surface treatment then applied.

Upon the surface-treated gravel base, there is spread sufficient crushed stone for a 3-inch compacted depth. This stone is of such size that it will pass a 2½-inch screen and be retained on a 1-inch screen. The usual precautions against segregation are taken, and with this range of stone sizes the filling of the voids is reduced to a minimum. After the surface has been rolled and keyed together, emulsified asphalt is applied at the rate of one gallon per square yard. Immediately after the emulsion has been applied and before it has had time to "break," clean keystone passing a 1-inch screen and retained on a ½-inch screen is spread uniformly over the surface, hand-broomed and rolled. The quantity of stone for this application is only sufficient to permit rolling without "picking up."



FIRST APPLICATION OF EMULSIFIED ASPHALT BEFORE SPREADING KEYSTONE



CLOSE-UP OF COMPLETED SURFACE, SHOWING SMOOTH NON-SKID TEXTURE

Second Application of Emulsified Asphalt

After the first application has had time to break, a second application of emulsified asphalt is uniformly applied at the rate of one gallon per square yard. Before it has had time to break, it is covered uniformly with clean keystone in sufficient quantity to fill all the voids, but not in excess of this. The surface is then thoroughly rolled and during rolling the surface is broom-dragged to evenly distribute the keystone, and more keystone is added whenever necessary to give a uniform covering without excess.

The following day, the course is thoroughly and systematically rolled, beginning at the shoulders and finishing at the crown. At least twenty-four hours should elapse after the second application of emulsified asphalt before traffic is allowed over the surface.

First Seal Coat

At least twenty-four hours should elapse after the second application of asphalt before applying the seal coat. After the surface has been compacted, it is swept clean and a seal coat of 0.3-gallon of emulsified asphalt per square yard is applied evenly. As soon as the emulsion

breaks, it is uniformly covered with clean stone chips in a quantity sufficient to take up all excess bituminous material, after which it is spread with a broom drag and rolled. If the stone is of such quality that the chips show excessive crushing under the roller, the engineer may cause this rolling to be omitted. The size of the chips for both seal coats is what will pass a ½-inch screen and be retained on a ¼-inch screen.

Second Seal Coat

Before traffic is allowed over the first seal coat, a second seal coat of 0.3-gallon of emulsified asphalt per square yard is applied evenly. As soon as the emulsion breaks, it is uniformly covered with clean stone chips in a quantity sufficient to take up all excess bituminous material, after which it is spread with a broom drag and thoroughly rolled.

This method of sealing gives a finished granular surface of small particles, which is non-skid and without the objectionable rumble of an open macadam surface. Many variations of surface finish are possible, and on the last seal coat, instead of applying chips, if crusher dust up to ¼-inch or coarse sand is used, a texture closely resembling sheet asphalt is obtained. The result is an exceptionally smooth-riding, waterproof pavement that will not bleed in hot weather or push under traffic.

Costs

This type of pavement has been built in Maine at the following costs:

Using local field stone for crushing, the cost of the stone in place was.....	$0.253 per sq. yd.
Emulsified asphalt, 2.6 gallons per square yard, furnished and applied at $0.1026 per gal.	0.267 per sq. yd
Total cost of pavement per sq. yd.....	$0.52

ACKNOWLEDGMENT.—From a paper presented before the North Atlantic States Highway Officials Association.

State Alcohol Control Authorities Proposed

FOR each state where the sale of alcoholic liquors will become legal after the repeal of the Eighteenth Amendment, the Rockefeller-Fosdick-Scott report* urges the establishment of what might properly be called the "State Alcohol Control Authority."

"By a state liquor monopoly we mean, in its simplest terms," says the report, "a system by which the state government takes over, as a public monopoly, the retail sale, through its own stores, of the heavier alcoholic beverages for off-premises consumption.

"On the basis of experience elsewhere the following powers would be necessary for the discharge of the Authority's responsibilities:

"1. The exclusive right within a state to sell or control the sale of all alcoholic beverages which contain spirits; all wines known as fortified wines, the alcoholic content of which exceeds that produced by the natural fermentation process; and all fermented products, such as beers and ciders, containing more than 3.2 per cent of alcohol by weight.

"2. The right to lease or own and to operate retail shops for the sale of those beverages by the package to the ultimate consumer for off-premises consumption, except that the Authority should be bound to abide by the decision of communities which vote to exclude the retail sale of any or all alcoholic beverages under local option provisions.

"3. The right to lease or acquire by purchase or condemnation and to operate warehouses, blending and processing plants, and other facilities as may be required.

"4. The right to fix prices on its goods and to change prices at will.

"5. The right to establish in its discretion a system of personal identification of purchasers.

"6. The right to establish regulations and to issue permits to owners or occupants of establishments to sell beer and naturally fermented wine or cider in sealed bottles or containers for off-premises consumption.

"7. The right to establish regulations and to issue permits to hotels, restaurants, clubs, railway dining cars, and passenger boats, for the sale of beer, with or without meals, and for the sale of naturally fermented wine or cider to be consumed with meals on the premises.

"8. The right to require private business concerns to certify the quantities of alcohol and alcoholic beverages manufactured in the state, and the amounts shipped into, within, and from the state, regardless of the purposes for which used; this to be worked out in cooperation with the Federal Government.

"9. The power to hold hearings on complaints about matters in dispute, including the power to subpoena witnesses and records and to make binding decisions."

The report comments: "In handling a problem as hazardous as the liquor trade, a broad grant of power, under ultimate legislative control, is the only effective method.

"It is to be noted that no reference is made in this list of powers to the sale of heavier alcoholic beverages by the glass for on-premises consumption. Such sale is inevitably fraught with danger to the public interest. It is our hope that a generous provision for the on-premises sale of beer and natural wine, together with sale of stronger beverages by the package in the Authority's shops, would be accepted as adequate in most jurisdictions by a preponderant majority of people."

In adapting state-wide policy to local sentiment of small sections and communities, the report recommends, instead of former methods of "local option," a far more flexible plan under which "reasonable liquor sale restriction will be worked out to meet local needs and desires, without resort to political campaigns and controversies." A State Authority could "establish dry zones within areas which voted as a whole to permit the sale of liquor"; "meet the opposing views of lesser communities existing within the larger voting unit by declining to locate in those neighborhoods, shops for the sale of liquor"; and, by refusing to place its shops on the border line of a dry area, eliminate the whole problem of border lines, so difficult to control under license. "The Authority's shop could be closed merely by the signing of an executive order. There would be no wholesale or retail dealers to protest and demand compensation. . . . The whole emphasis of the Authority system is on limiting the sale to unstimulated demand and not on sales promotion."

The principal merits of the Authority plan are thus summarized:

"It would effectively stifle the profit motive for enlarging liquor sales beyond a minimum demand. It would facilitate the control of advertising.

"It would provide freedom of action in regulating prices and conditions of sale, both as a means of checkmating the illicit dealer, and as a method of curtailing the use of spirits.

"It would eliminate the saloon. It would minimize opportunities for the encroachment of political interference. It would keep clear the road for temperance education.

"If this plan is adopted and honestly and competently administered, it should give a maximum degree of protection against the revival of age-old abuses known to licensed regulation, and against the more recent evils of a traffic unregulated by government and managed by law violators."

Immediate action is recommended for "two convincing reasons: First, there is at present no legal private trade to be dispossessed; second, in the coming conflict with the bootleggers, unity of command along the entire front—economic as well as legal—is half the battle won."

* See pages 35 and 75 of this issue.

A New Criminal in the Taste and Odor Field

Electrolysis Thought to Be Responsible for More Than Corrosion of Water Pipe

FUGITIVE electric currents have been identified as one of the agencies which at intervals cause tastes and odors in water supplies, according to a report of studies made in northern New Jersey by the Hackensack Water Co. The practice of grounding electric wiring on the piping systems in houses, as well as certain electric appliances, such as radio instruments and the like, is connected with certain tastes and odors which mysteriously appear in the water delivered to a consumer, and which are absent from water in the street main.

The investigation, directed by Nicholas S. Hill, Jr., consulting engineer, President of the company, has apparently disclosed this new phenomenon of electrolysis related to a broad situation involving the nation's vast network of underground carriers such as water mains, and other pipe lines. The findings have been reported to the American Water Works Association as the basis for a nation-wide study of the problem of these phases of electrolysis as it affects the behavior of water itself.

Electrolysis in the form of corrosion is known to inflict heavy economic losses, and has been studied for many years by a national committee representing the electric, gas, water-works, and oil industries. Stray direct current has long been known to disintegrate water mains, but until now any influence upon the quality of water has not been shown or established. The action of alternating current may have a much greater effect than previously realized by experts.

The Course of the Wayward Current

The wayward current, it is explained, arises from "promiscuous grounding." The primary function of a ground wire is safety. It is an avenue of escape for current which may be diverted from its normal course by a leak or a defect in insulation, as, for instance, a defective fixture.

The simplest and readiest metallic path is the water pipe, and when this is used, the current, instead of dissipating itself harmlessly in the earth, continues its activity, with damaging consequences to the water as well as to the pipe containing it. The damage so far revealed has been confined largely to small service pipes within the building and extending from the house to the street, but current flow may have other detrimental effect on the mains and their associated underground structures.

The current, it was found, sometimes discolors water, making it blue, green, or red, and again creates disagreeable odors and metallic tastes suggestive of tin, lead, or rust. Blue water in a Bergen County, N. J., bathtub was apparently traced to a radio grounded twenty feet inside the water meter. The condition was intensified late at night when the radio was operated continuously. The blue disappeared when the ground wire was reconnected at a different point. The current had apparently slightly disintegrated the brass pipe.

In another case, a radio grounded to a brass water pipe used to supply a continuous stream of water to a small aquarium caused the death of two out of three goldfish. Removal of the ground and treatment of the one remaining fish prevented further trouble, and other fish subsequently added to the tank remained healthy.

Tracing the Criminal

"Investigation of tastes and odors in tap water at certain premises on the Hackensack system, embracing 51 communities in Bergen and North Hudson Counties, were made in an endeavor to eliminate one possible cause after another," Mr. Hill reports. "The presence of taste and odor would not occur uniformly throughout the day, but would be more noticeable at certain fairly well-defined hours. In each case, where trouble was finally attributed to electrical currents, ground wires from electric light or power lines, radios or some other electrical equipment were found attached to the water service piping within the building, perhaps as much as 50 feet from the water meter or the point at which the water service enters the earth."

In one case, where electric current was not available for lighting, a storage battery radio was grounded to a hot water heating system, and therefore connected with the water service. Removal of the radio ground eliminated the disagreeable odor. An examination of the meter set on these premises indicated appreciable electrolysis of the screen.

A nauseous odor in the water supplied on two streets in Spring Valley, N. Y., by a subsidiary company of the Hackensack system was accidentally found to be due to defective insulation on an underground electric service which permitted considerable alternating current to "flow" from this service through soil and about 400 feet of 6-inch water main to a brass water service on which there was a ground connection from a three-wire electric service.

Similar experiences were reported from New England cities, where toothbrushes turned blue and sinks turned green as a result of defects in the wiring of an electric refrigerator.

Experiments to determine the action of electric current upon tap water in service pipes are now being carried out by the Hackensack Water Co., in Weehawken, N. J. The experiments will be duplicated in New York City and elsewhere in the United States.

Twenty-Five Field Men to Help Cities Solve Their Emergency Problems

American Municipal Association Renders Unique Service Through State Leagues of Municipalities

TWENTY-FIVE expert service men, to help cities solve problems arising out of the emergency, are to be put in the field this month under the supervision of the American Municipal Association, Paul V. Betters, Executive Director, announced following the adjournment of a three-day business meeting of the group, held in Chicago, October 26-28.

Problems of getting PWA applications into shape for speedy action will be the main interest of the new field force, Mr. Betters stated. The field men are to do all they can to help expedite projects already under way, rather than to act as promoters of new ones. They will be assigned to state leagues of municipalities, which make up the membership of the American Municipal Association. City officials who need help are urged by Mr. Betters to get in touch with their state league headquarters.

About two months ago Public Works Administrator Harold L. Ickes named Mr. Betters liaison man between PWA and the cities. A few weeks later, arrangements were made for state leagues of municipalities to give legal aid and advice on PWA applications. This latest move, the provision of a nation-wide field staff, marks the beginning of an aggressive campaign to get action on the hundreds of applications now held up for various reasons.

C. C. Ludwig has resigned as City Manager of Albert Lea, Minn., to become Mr. Betters' assistant in charge of this work. Sherwood Radder, formerly of the Citizen's League of Cleveland, recently a PWA examiner, has been released by Mr. Ickes to assist Mr. Betters and Mr. Ludwig in directing the field force in speeding projects.

Henry T. Hunt, Chief Counsel for PWA, speaking before the American Municipal Association last week, expressed full approval of the field force plan and promised active cooperation on the part of Washington headquarters.

A committee has been named by the American Municipal Association to confer with Mr. Ickes and his staff at an early date as to what state legislation is needed to remove obstacles to and expedite public works projects. The field men will be available to help legislators work out such legislation.

Appointments for six states were announced on October 28 by Mr. Betters: W. K. Seitz, governmental consultant, of St. Joseph, Mo., assigned to Kansas; Herbert Olson, former City Engineer of Flint, assigned to Michigan; for New York, Walter Stone, former Mayor of Syracuse; North Dakota, Myron H. Atkinson, of Bismarck, Director of the League of North Dakota Municipalities; Texas, Adam Johnson, former Manager of Austin; Wisconsin, Arthur Rabuck, planning engineer, of Milwaukee.

Appointments for Minnesota, New Jersey, Virginia, North Carolina, Oklahoma, Oregon, Washington, California, Kentucky, Tennessee, Massachusetts, Ohio, Indiana and other states will be made promptly, Mr. Betters states. Some field men will be assigned to more than one state.

The work is scheduled to carry on for six months. Field men, while concentrating on speeding PWA projects, are authorized to give aid to municipalities in other matters.

Challenges to Sloganeers and Planners

A CHALLENGE has been sounded for all good sloganeers to come to the aid of their country. Speaking before the American Municipal Association in Chicago on October 28, Louis Brownlow, Director, Public Administration Clearing House, sounded the call for slogans that would capture popular imagination and fire citizens to do the things they ought to do for city, state and nation.

"When those of us who want good government are able to put out ideas in simple terms, like 'big, bad wolf,' maybe we'll have better luck in getting them across," Mr. Brownlow said.

He deplored the debility of the nice polite slogans like "efficiency and economy." "No one ever burnt a hat for 'efficiency' or waved a banner for 'economy,'" he said. "'Fads and frills,' the slogan used by those who want to cripple schools, is, sloganly speaking, much better than any yet devised for 'constructive improvement' in government."

President Franklin D. Roosevelt gets the 1933 palm for sloganeering in the public interest, Mr. Brownlow stated. He awarded first prize to the two words "ancient atrocity" used by the President in a radio talk to dub child labor. "Such a slogan is more effective than a flock of laws."

At the close of the meeting, members of the audience pointed out that "brain trust," another coined by the President has "gone across" well. "Muck-raking," brain-child of the other President Roosevelt, was recalled as one of the landmarks in political slogan history.

"If we can get just one point across, perhaps we can save in the next ten or fifteen years a good part of all the hundreds of millions to be spent on public works in the next year or two," Prof. Charles E. Merriam, political scientist, of Chicago, told the same meeting of the American Municipal Association.

The "one point" is to coordinate the planning and building programs of the five main agencies of government that now build independently—Federal, state, municipal, county, schools.

Referring to his experience as one of three members of the National Planning Board, now advising Secretary of the Interior Harold L. Ickes, Mr. Merriam said, "Scarcely any community has a unified plan. City planning to date is scattered and sketchy, having to do mainly with matters of engineering. A great broadening of planning, to include matters of government reorganization, consolidation and reconstruction, is needed."

"I think it is coming," he prophesied.

JOHN H. MILLAR,
American Municipal Association.

The New All-Electric Filtration and Pumping Plant at Easton, Pa.

By C. H. VIVIAN

THE Lehigh Water Company, which supplies Easton, Pa., and the neighboring borough of Wilson, has recently placed in service a new all-electric filtration and pumping plant on the Delaware River a mile above Easton. These facilities supplant a steam pumping station which had been in use more than fifty years, and mark the latest improvement in a water-supply system created in 1817. The original installation consisted of wood piping which distributed water by gravity from springs on a hill which now is covered with residences and is also the seat of Lafayette College. Although supplemented by another and more modern system since 1851, some of these pipes remained in service until about ten years ago, and a few consumers continued to use the water for drinking purposes because of its purity and palatability.

The second source of supply was the Lehigh River, which meets the Delaware within the city, and from which the present company took its name upon its formation in 1860. Industrial activity along the Lehigh above Easton rendered the water of that stream unfit for use, so in 1881 the company established the first plant on the Delaware River.

The Second Delaware River Plant

The new Delaware River plant consists of a low-lift pumping station which delivers water from the river to the filtration plant on higher ground a few hundred feet away, settling reservoirs, treatment basins, filters, and a high-lift pumping station which elevates the treated water some 260 feet to distributing reservoirs.

The company normally supplies about 7,500 services, and these are estimated to provide for between 35,000 and 40,000 persons. When industrial activity in the section was at its height, the normal consumption was around 4,500,000 gallons per day, and the peak demand about 7,500,000 gallons. Until a year ago only half the services were metered. The metering of the remaining services, together with the recession in manufacturing, reduced the demand materially. It is possible only to estimate the usage under metered service in a period of normal business and industrial activity, but the plant was designed to care for the former peak consumption plus a comfortable margin for future growth. The filtration equipment now installed will handle 8,000,000 gallons every 24 hours, and pumps are provided for 12,000,000 gallons.

Until the new facilities were installed, no filtration was provided. The water was distributed with no treatment other than the addition of chlorine and ammonia for about one year prior to the use of the new plant. Although the water is ordinarily clear, there were periods when it contained considerable sediment. The two distributing reservoirs were used in parallel, giving sufficient time for most of the sediment to settle out.

The Pumping Plant

Water is now taken by gravity from the Delaware into either of two suction wells. En route to the pumps it passes through a 3-inch bar screen and a ¾-inch wire mesh screen. The low-head pumping plant consists of three Cameron 10-inch single-stage centrifugal units, each rated at 4,000,000 gallons a day against 49.5 feet of load. They operate at 1,170 rpm, and each is driven by a General Electric 50-hp motor using 440-v, 3-phase, 60-cycle current which is delivered through a substation on the premises. These pumps discharge through 18-inch lines into a 30-inch main which delivers the water to sedimentation reservoirs at the filtration plant. Means are provided for by-passing these reservoirs during times when the water requires no settling, and delivering it direct to the treatment channels.

The Sedimentation Reservoir

The primary sedimentation basin has a normal depth of 15 feet, an effective capacity of 333,000 gallons, which gives a theoretical 2-hour retention period when the plant is operating at a rate of 4 mgd. The basin is divided into two equal sections by a wall. It has been in use continuously since the plant was put into operation. The water flows from this basin to either or both of the mixing channels.

Chemical Treatment

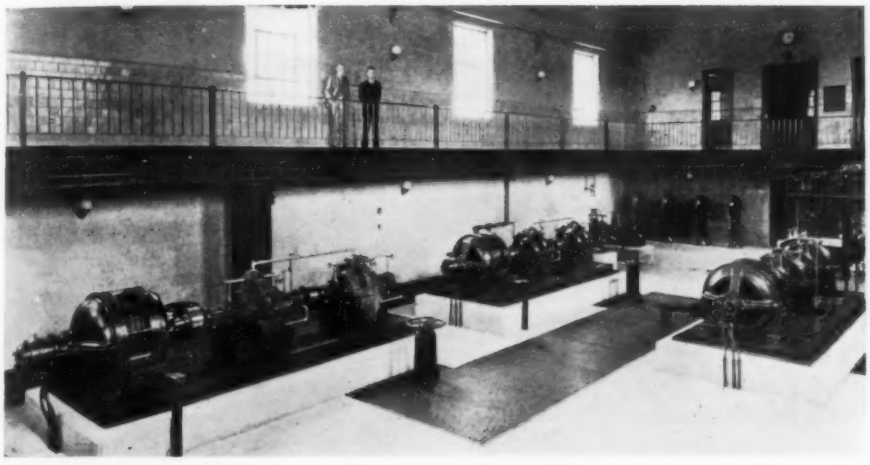
The water then passes inside the building and into mixing channels. Before reaching these, aluminum sulphate, slaked lime and activated carbon are introduced by Wallace & Tiernan Type O dry chemical feeders, of which five are installed. The mixing channels, which are in duplicate, are each of about 83,000 gallons capacity. Hardinge type mixers are provided and are unusual in that four vertical stirring paddles are driven by one horizontal shaft through gears. A Reeves speed controller permits varying the speed through a range of from 1 to 3 rpm.

Filtration Equipment

It requires 30 minutes for the water to pass through the mixing channel, from which it flows outside the building into a 500,000-gallon concrete coagulation basin, where it is retained for three hours. It then returns inside the building and flows to Norwood Engineering Co. filters. There are eight filter beds, arranged four on either side, with a pipe gallery occupying the intervening space. The water enters the filters through take-offs from a 30-inch

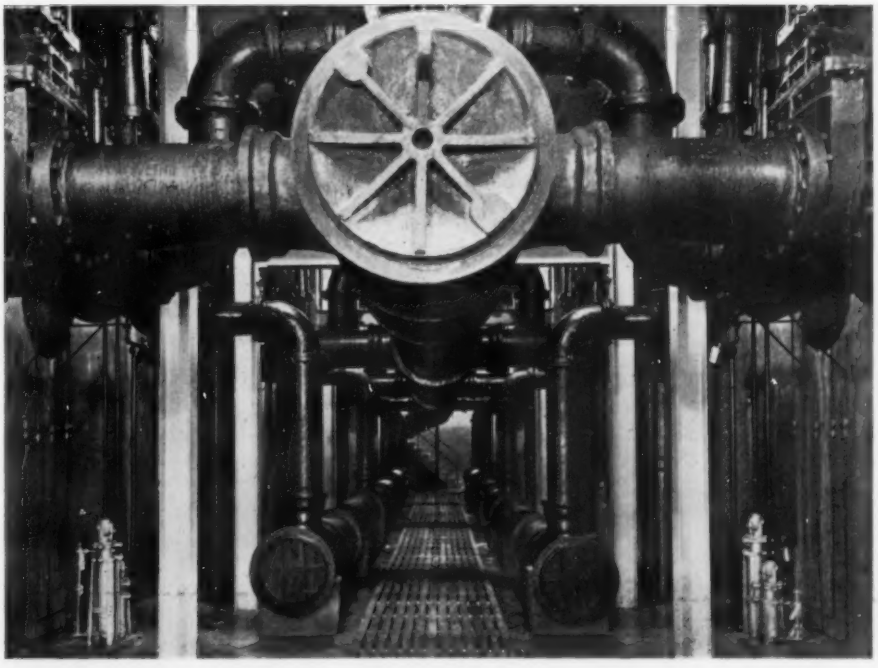
THE FILTERS, FOUR ON EITHER SIDE, WITH CONTROLS AND RECORDING GAGES ON THE STAND IN FRONT OF EACH UNIT

The structure in the center is a goldfish aquarium



THE PUMP ROOM IN THE MAIN PLANT AT EASTON, PA., SHOWING THE THREE 4,000,000-GALLON-PER-DAY HIGH-HEAD PUMPS

The 30-inch suction line runs beneath the floor plates in the center of the room



THE PIPE GALLERY WHICH OCCUPIES THE SPACE BETWEEN THE FILTERS AND THE CLEAR WELLS

line in this pipe gallery. Each filter has a capacity of 1,000,000 gallons a day and is made up of 18 inches of gravel graded in six sizes ranging from 1½ inches down to 1/16-inch, and a top layer of 30 inches of Cape May sand. The performance of each unit is recorded on Simplex gages showing rate of flow and loss of head. The filters discharge into a 20-inch line in the pipe gallery.

For cleaning the filters periodically, treated water flows by gravity from a 50,000-gallon tank on the third floor of the building and enters the filters from the wash-water line through laterals to each filter. The wash water flows to a sump, from which it is discharged into the river during periods of the year when this is not objectionable. At times when the river is used for bathing, the wash water is pumped from the sump to a sedimentation basin. For this service a Cameron No. 6 Type NFV centrifugal pump rated at 1,000 gpm against a 30-foot head is used. The wash-water tank is filled by a pump of the same size and type but designed for operating against a 62-foot head.

The filtered water flows to one of two 250,000-gallon clear wells located below the banks of filters on either side. Simplex automatic-level control valves shut off the flow to the clear well when the water reaches a certain level, and also regulates the depth of water on the filters.

Ammonia is introduced at the influent end of the clear well, and chlorine at the effluent end. The chlorine dosage varies from 1 to 1.5 ppm in hot weather, but is much less in cold weather. The ratio of ammonia to chlorine is about 1:4 at present. The chlorine in conjunction with ammonia and activated carbon prevents any objectionable tastes or odors. This improvement in the potability of the water is one of the chief virtues of the new system from the consumer standpoint, since the water formerly had a decided taste.

The High-Lift Pumping Equipment

The clear well is built in two units, one below each set of filters. All of the water enters one end of one "leg," which is connected to the other leg by a 30-inch lateral at the end opposite the influent end. At this point a white-tiled glass-topped observation pit is located. At the opposite end of the second leg is the suction pit of the high-lift pumps. At this point the secondary chlorine and ammonia are now applied. There are three high-head pumps. Each is a Cameron No. 10 Type SHV, rated at 4,000,000 gallons a day against a head of 304 feet, and driven by a General Electric 300-hp synchronous motor. These pumps are of the two-stage compound type, with bottom suction and bottom discharge. The connection between stages is a simple U bend which reduces friction. The pumps operate at 1,200 rpm. The motor and pump are mounted on the same welded steel baseplate with no structural reinforcement beneath. Only the edges of this base rest upon the concrete foundation, which permits leaving a pit beneath each unit in which piping can be concealed and still be readily accessible.

A laboratory is installed with complete modern equipment for making all chemical, bacteriological, and microscopical analyses. From thirty to forty routine examinations are made daily.

The design and installation of the plant were made under the direction of J. W. Ledoux, of Philadelphia, with George L. Bean as resident engineer. The construction was carried on under two main contracts and a number of subcontracts. Collins & Maxwell, of Easton, were general contractors for the low-service station, and also performed some of the preliminary work in connection with the filtration plant. The Turner Construction Co., of New York, had the general contract on the main portion of the filtration plant and high-service pumping station. The General Electric Co. installed the power substation and switchboard.

Asher J. Odenwelder, Jr., is President of the Lehigh Water Co., which bears the distinction of having had only five presidents during the 73 years of its existence. R. W. Haywood, Jr., serves as filtration superintendent in charge of the plant. Only two men to a shift are required for operating personnel, and the same staff that ran the outmoded steam plant have taken over the new one.

The improvements represent expenditures of approximately $1,000,000 and were in course of preparation for more than two years.

November and December Broadcasts on "The Crisis in Municipal Finance"

AS stated in the October number of THE AMERICAN CITY, the National Broadcasting Company will carry on its nation-wide network, each Tuesday evening until February 6, 1934, at 7.15 Eastern Standard Time, discussions by outstanding speakers on various phases of "The Crisis in Municipal Finance." The complete program is obtainable without charge from the National Advisory Council on Radio in Education, 60 East 42d St., New York. The subjects and speakers for the next ten weeks are:

NOVEMBER 7.—THE CITIZEN AND HIS CITY
Richard S. Childs, President, City Club of New York

NOVEMBER 14.—BORROWING FOR CURRENT NEEDS
E. Fleetwood Dunstan, Chairman, Municipal Securities Committee, Investment Bankers Association of America
Prof. Thomas H. Reed, Chairman, Committee on Citizens' Councils for Constructive Economy.

NOVEMBER 21.—THE STATE AND LOCAL CREDIT
Governor Herbert H. Lehman, New York
Mayor Howard W. Jackson, Baltimore

NOVEMBER 28.—PRUNING THE CITY BUDGET
Peter Grimm, Chairman, Citizens' Budget Commission of New York
Harlow S. Person, Managing Director, Taylor Society
Harold S. Buttenheim, Editor, THE AMERICAN CITY MAGAZINE.

DECEMBER 5.—WHY TAXPAYERS STRIKE
Judge Carroll Sprigg, Chairman, Citizens Emergency Council, Dayton, Ohio
Prof. Leonard D. White, University of Chicago
Carl H. Chatters, Director, Municipal Finance Officers Association

DECEMBER 12.—A VOICE IN THE DARK—A DRAMATIC SKETCH

DECEMBER 19.—TAX PAYING MADE EASIER
Philip A. Benson, President, Dime Savings Bank of Brooklyn
Sanders Shanks, Jr., Editor, *The Bond Buyer*
Prof. Carl Shoup, Columbia University

DECEMBER 26.—INDIVIDUAL RIGHTS AND THE NRA
Dean Isidor Loeb, Washington University, St. Louis
Prof. Raymond Moley, Columbia University
Dean Walter J. Shepard, Ohio State University

Using Federal Funds Within City Limits

By MAJOR WILLIAM G. SLOAN
New Jersey State Highway Engineer

TWO of the chief projects to be completed within city limits on the New Jersey state highway system, under the National Industrial Recovery Act, are the widening of the Central Railroad underpass at Elizabeth and the paving of the junction of Routes 21, 25 and 29 at Newark. Owing to the highly developed character of New Jersey, however, every dollar of Federal aid will be of direct benefit to its urban areas. Only Rhode Island exceeds it in density of population, and, while New Jersey is forty-fifth in area among the states, it holds eighth position in automobile registration and ninth in population. Its location between New York and Philadelphia and the constant flow of traffic from the south and west give it the highest percentage of travel per mile of roadway in the Union.

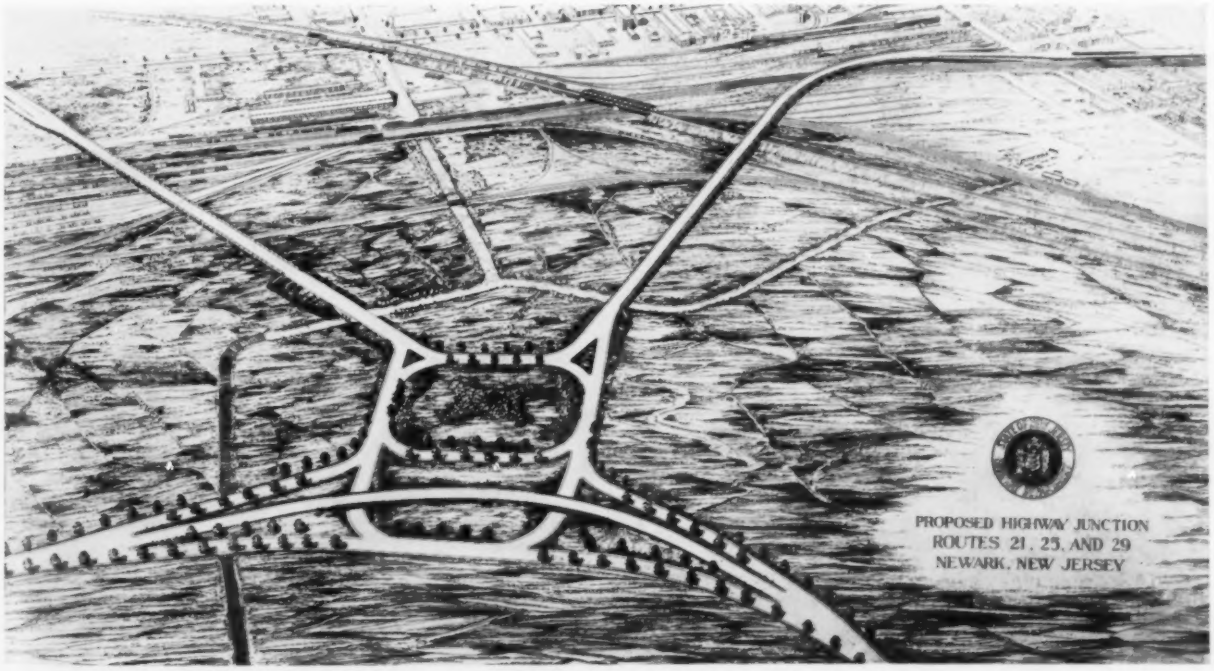
A BAD BOTTLENECK THAT IS SOON TO BE WIDENED

An underpass on New Jersey Route 25, U. S. Route 1, in Elizabeth, N. J., to be widened to 120 feet on a line with the church in the right background

A DEPRESSED ROADWAY FOR ROUTE 6 AT PALISADES PARK, BERGEN COUNTY, N. J.

The route crosses the state of New Jersey from the Hudson River to the Delaware River

Traffic counts taken in Elizabeth on Route 25, U.S.1, show that frequently more than 20,000 machines pass through that municipality in an eight-hour period. The state provided a right-of-way 120 feet each side of the Central Railroad there, but the narrow underpass requires the merging of nine traffic lanes into two, with a



AN INGENIOUS PLAN TO ELIMINATE CROSSING OF LINES OF VEHICLES FROM ROUTES 21, 25 AND 29 AT GRADE

From upper right, Route 21 approaches the intersection over railroads from the lower right, westbound traffic on Route 25, U. S. 1, is carried over Routes 21 and 29; and Route 29 approaches the intersection from the upper left-hand corner

costly loss of time for car owners. The new underpass will span the full width of the road.

The traffic on Route 25 at Newark exceeds that in Elizabeth, and an ingenious engineering plan has been adopted to eliminate the crossing of lines of vehicles from Routes 21 and 29 at grade. The overpasses and underpasses are another example of New Jersey's courageous pioneering to provide safer arteries for a free flow of traffic.

Route 6 crosses the state from the George Washington Bridge on the Hudson to the Delaware River and taps scores of centers of population. The paving to be done between Ridgefield and Hasbrouck Heights will give access to the modern concrete bridge on a new alignment across the Hackensack River and will open the Route 6 link which has been tunneled under the cross streets in Palisades Park. Paterson, Passaic and other cities to the north and west will have the immediate advantage of this time-saving improvement.

Another project will carry Route 1 in Jersey City along Newark Bay and will divert vehicles from the congested Hudson Boulevard. Route 1 is the north-south artery between the George Washington Bridge and the Bayonne Bridge to Staten Island and skirts the heavily traveled local streets.

Route 10, which is later to be carried through Newark, is an east-west alignment of growing importance and the link to be paved around Dover, Morris County, under the NRA program, will save both time and distance.

The limited area of New Jersey, 50 miles east and west and 150 miles north and south, makes 95 per cent of its travel intercity in character. Its entire construction program can be listed as of value to its larger municipalities.

EDITORIAL NOTE.—A survey of the extent to which the new Federal highway funds are being used within city limits in other states will be found on page 11 of the October issue and on page 64 of the current issue.

Cleanliness at the Incinerator

No Flies and No Garbage Odors Apparent at the Sheboygan Incinerator

IT has been correctly said that the disposal of garbage begins at the householder's garbage can. The city officials of Sheboygan, Wis., believe in this completely and require the householder to wrap their garbage in paper before depositing it in the can. This is irksome to the housewife when the requirement is first made, but after she has seen the great advantages of the method, it would be hard to get her to change back to the old system. Hotel and restaurant garbage are not wrapped and come to the incinerator along with the regular garbage.

The collection trucks start out on their routes between 5 and 5.30 A.M. and are through at about 3 P.M. in summer, when the collections are heavy, and by 1 P.M. in winter. Garbage from private trucks, consisting of store and shop refuse and dead animals, is accepted at the incinerator for disposal, but it must be delivered before 3 in the afternoon. There are five collection trucks of about 2 yards capacity each. The bodies are of wood, lined with sheet metal soldered to make it watertight. The bodies are made in the city shops adjacent to the incinerator and convenient to the entire city, since they are centrally located. The operation of the incinerator must be satisfactory or the greater part of the population would be quickly aware of the lapse in operation, for it stands within three blocks of the center of population of the entire city, which has a population of 39,257.

THE CITY YARD AND THE REFUSE INCINERATOR, SHEBOYGAN, WIS.

At the left and right are seen various storage buildings built by city forces and welfare labor, and in the center the incinerator. The entrance gate is in the center foreground, and the exit gate at the right. Note the neat and attractive appearance of the site

The Incinerator

The incinerator is a brick structure within a small enclosure surrounded by a well-kept grass plot with two large rose bushes, which are loaded with large pink roses during June each year, and the entire area is attractively landscaped with shrubbery purchased by the employees of the plant and not by city funds. The delivery or stoking floor of the plant is at ground level, and the trucks drive in one door and out the other. There are three stoke-holes, two of which deliver the garbage to the newer Jones incinerator; the third, which is now held in reserve, is for the old Freres incinerator. The old unit has a capacity of 15 tons of garbage per 24 hours, and the new units burn 10 tons in 16 hours.

The trucks drive in the entrance door, and the incinerator man indicates which hole is to be used in dumping the load. Then the 250-pound cover to the stoke-hole is lifted by a chain falls, and the truck is driven over the hole and the body tripped. The truck driver and helper assist the man on the loading floor to get the garbage through the hole, and then the truck is driven forward almost to the exit door and washed with a stream of hot water, which drains to the sewer while the helper and the loading-floor man sweep the last vestige of the load into the hole, leaving the floor clean. This is done after every load, so that there is nothing to attract flies, and the old conundrum, "What is it that has four wheels and flies?" does not apply to the garbage trucks of Sheboygan, for they are cleaned thoroughly before leaving the incinerator and no swarm of flies follows them over their route, even though the trucks are not covered. The five trucks in the fleet are used to cover three regular routes, with one spare truck and one used as a transfer truck on Mondays following holidays, when the regular collectors do not go to the incinerator except with the last load from the day's route.

The brick building has a wood roof, and the entire inside of the structure is painted with gray paint and aluminum paint for metal work, giving a neat, clean appearance. The first operator comes on duty at 7 A.M. and starts the incinerator fires and works eight hours. The second operator comes on at 3 P.M. and completes the burning of the garbage received during the day, and then cleans the fires for the day. When receipts are very heavy, as during the watermelon and corn season and during the canning season, a third shift, from 11 P.M. to 7 A.M., is added. The fires are normally clinkered at noon and at the end of the day's run, and the clinker is disposed of on a small dump close by the incinerator under one of the city bridges. The use of this material is described in a later paragraph. The incinerator is located so that a sloping alley from the clinker floor permits the clinker to be wheeled to the dump.

The incinerator stack is 80 feet high and 5 feet in diameter. The lower section of the building at the clinkering floor level has a furnace to heat the building, since the incinerator is not operated for the full 24 hours during the winter months, and also has an auxiliary water heater for washing the trucks and for the lavatory and shower baths. This heater is used in case the coils located in the furnace do not supply enough hot water to thoroughly clean the trucks in the early morning or during a particularly wet week. A coal bin at the exit end of the building is used to store the coal used for the furnace and as auxiliary fuel for the incinerator. About 60 pounds of coal is used per ton of wet garbage consumed.

A QUITE DIFFERENT TYPE OF INCINERATOR AT THE NORTH CITY LIMITS

Used to dispose of combustible rubbish at a city dump where a ravine is being filled

In their spare time, the second shift men, particularly, have constructed an interesting rock garden within the incinerator. It includes a small pool, a fountain and at times a goldfish or two, but these have mysteriously disappeared so many times that now a wire fence prevents the mascot of the plant, a small cat, from getting anywhere near the pool.

Utilizing the Clinker

A small area is usually not sufficient for the disposal of the clinker of an incinerator over a long period of time. In Sheboygan the clinker has become a regularly used material for the stabilization of swampy roads where the soil does not seem to bond well and where high ground water is constantly causing trouble. A generous layer of the clinker, which includes the tin cans which have been through the fires, is applied to the roadway and allowed to compact under traffic. The cementing action of the clinker with the water quickly makes a firm roadway at very small cost. This method was first used by the City Engineering Department experimentally to stabilize short sections of streets in swampy areas in the outlying sections of the city, and its success made it standard practice. Now the local utilities haul out truck loads for their own use, and the railroad has cured several bad spots in its freight yard by generous applications of incinerator clinker, so that now the local truck drivers are able to double their loads in getting out of some of the sections of the yard where formerly they had to pull out with partly loaded trucks. Hence, incinerator clinker is a sought-after by-product in Sheboygan, and as no charge is made for it, the small area for dumping it at the incinerator is sufficient, since it serves only as temporary storage before the clinker is taken out to serve a very useful purpose.

Garbage Disposal Without Odor Nuisance

In the 1933 Municipal Index appears an important article by Frederick E. Toquet, City Engineer of Bridgeport, Conn., entitled "A Comparison of Methods for Garbage Disposal Without Odor Nuisance, from the Viewpoint of a Municipal Engineer." The advantages and limitations of both the caloric and the non-caloric methods of disposal are discussed.

Snow Removal in

An Allis-Chalmers 35 and Baker snow plow owned by the City of Berwyn, Ill.

A Caterpillar Ten and LaPlant-Choate sidewalk plow owned by the City of Elmhurst, Ill.

An Allis-Chalmers 35 and Sargent snow plow owned by the City of Windsor, Vt.

A Cletrac 80 and Sargent snow plow working near Plattsburg, N.Y.

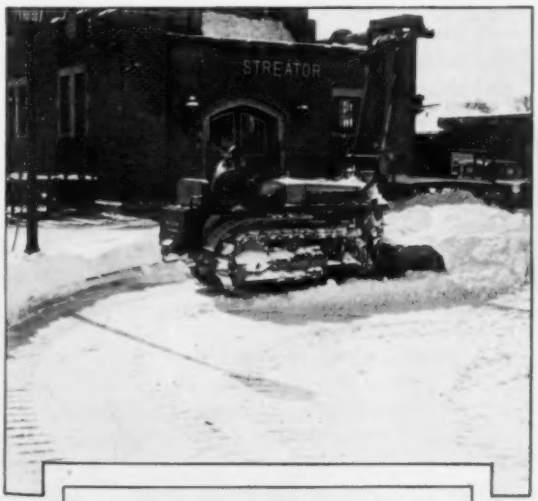
An Allis-Chalmers Model U and snow broom clearing the streets of the City of East Chicago, Ill.

the United States

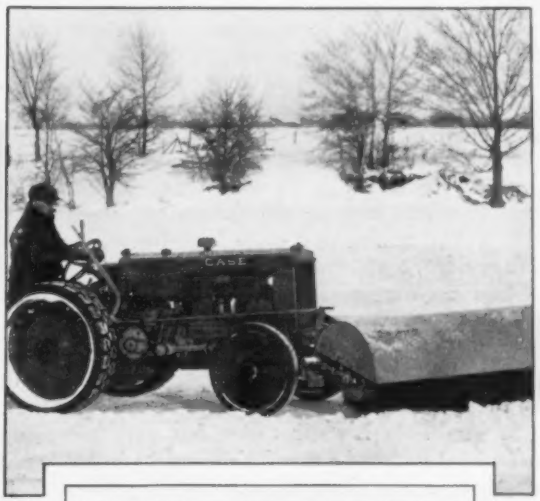
A Cletrac 40-30 and Wisconsin special plow working in Woodbury County, Iowa

A Caterpillar Thirty opening the runway at the Chicago Municipal Airport

An Allis-Chalmers Model L tractor with wing plow working near Idaho Falls, Idaho



A Caterpillar Twenty and Anthony Loader clearing drives around a railroad station at Streator, Ill.



A Case tractor and snow broom clearing a light fall of snow from a highway

Cement-bound Macadam Paid for in Mason City with Scrip

By **LESTER MILLIGAN**
Secretary, Mason City Chamber of Commerce

MASON CITY, IOWA, recently completed an unemployment relief project in the form of a 3,820-foot cement-bound macadam drive which was paid for entirely with scrip. The scrip is retired by proceeds from the sale of stamps which must be affixed to the scrip once a week or each time it changes hands.

The pavement was placed on River Drive, an outlying thoroughfare running along the Winnebago River, used principally as a pleasure drive, but destined to become a belt highway by-passing the business and principal residential districts. The slab is 16 feet wide, 6 inches thick, and was constructed with a minimum of machinery, to give employment to the greatest possible number of men.

ADVERTISING THE JOB

Construction

The first construction operation was grading, which was done entirely by hand. Side ditches were dug, and the earth from them was thrown into the roadway and leveled by hand.

Steel forms were used. As only 7-inch forms were available and the slab was 6 inches in depth, the forms were put in a trench 1 inch deep. They were held in place by the usual steel pins. No bracing or earth backing was required.

For 3,335 lineal feet of the pavement crushed limestone was used as the coarse aggregate. Gravel pebbles were used, as an experiment, for 485 feet of slab, and proved as easy to grout, roll and finish as crushed stone.

The coarse aggregate was deposited on the rolled subgrade to a loose depth of 7½ inches and was spread and leveled by hand. It has been customary to roll the stone prior to grouting, but this was omitted because it was believed better penetration would be secured in loose than in compacted stone.

Grouting

The grout was mixed at a central plant and hauled to the road in trucks with agitator bodies. It was proportioned 1 sack of cement to 2 cubic feet of sand, measured dry and rodded, and about 8 gallons of water. Eleven sacks of cement were required per cubic yard of grout.

Grout trucks backed over the loose stone, or pebbles, to the point where grout was being deposited. As the stone was ordinarily kept only about 150 feet ahead of grouting, there was little opportunity for the truck wheels to rut the stone. Any ruts that did form were leveled up just before grout was deposited. The trucks had no difficulty in backing over either the stone or the pebbles.

The grout was discharged down a chute that had a distribution box at the end, which prevented washing of the stone. This distributor was a box made of 10 gage metal, with three baffle plates to reduce the velocity of the grout, and, in the bottom, holes 1 inch in diameter, spaced 3 inches center to center, which directed the grout vertically downward.

The grout was deposited so that it would flow forward, into the stone, instead of being dropped directly onto the surface of the bare stone, as the latter method seemed to trap air in the voids and prevent perfect penetration. Three men, with street brooms, swept excess grout forward.

Completing the Surface

After the grouting, the surface was trued up by shifting the coarse aggregate around to fill depressions or lower high spots. Only a few minutes was required for this operation, and then the surface was rolled with a small three-wheel roller weighing about 4½ tons. The rolling was continued until all coarse aggregate was submerged and excess grout and water were brought to the surface. The roller kept from 8 to 10 inches away from the forms, and this space was compacted by hand tamping.

The surface was then checked with a 16-foot straight edge, and high spots were reduced by hand tamping, after which it was again rolled and excess grout was swept forward.

On the first part of the job the surface was given a final finish by brooming, but later belting was substituted and was found to be more satisfactory. The slab was cured with wet burlap, followed by wet earth, which was left in place seven days.

A constant check was kept upon the penetration of the grout by comparing the grout used with the amount theoretically required; by observation of the slab edge after forms were removed; and by grouting small areas beyond the header, at night stops, and removing and examining this grouted portion for honeycomb.

Equipment

The equipment used consisted of 3 truck mixers, 1 triplex pump, 1,000 feet of steel forms, 1 Austin Pup

roller, small tools, hose, etc., and a Ford truck, hauling forms, shoulder material, etc.

The small tools were purchased outright but the rest of the equipment was rented. The equipment cost was 6 cents per square yard.

Labor

Except the superintendent, the labor all came from the registered unemployed and was selected by the relief agencies. It ranged all the way from ex-bootleggers to former paving superintendents, though most of the men sent out had been laborers.

With the exception of the superintendent, the timekeeper and three "key" men, the entire crew was changed every three days, one gang working from Monday to Wednesday, inclusive, and the next from Thursday to Saturday. Even though they knew their job would last only three days, there was no "soldiering" among these men, who worked more earnestly than is expected of the average workman.

Men were paid 30 cents per hour. As the scrip was issued in $1 units only, the hours of work had to be arranged so that each man's pay came out in even dollars. A total of $8 was earned in the three days.

Issuing the Scrip and Retiring It

Scrip was issued by the Mason City Chamber of Commerce. It was guaranteed by a majority of the city's larger business houses, each agreeing to take a specified amount each week in payment for goods. A clearing house was also established where any merchant could exchange scrip for cash in case he found he had taken in more scrip than he could dispose of.

The scrip was issued in $1 units. On the face was printed a statement of what the scrip was. The back was divided into 52 rectangles, each of which was dated, the dates beginning at the week of issuance and running for each of 52 succeeding weeks.

Special stamps, one of which would just cover a rectangle, were sold by the Chamber of Commerce at 2 cents each, and merchants agreed to affix one of these to the scrip whenever it changed hands. It was also agreed that at least one stamp would be affixed each week, so that the scrip would not be held but would be retired promptly, and the weekly dates in the rectangles were provided for that purpose. When a customer presented a scrip dollar in payment for goods, he was sold a stamp, which he affixed to the scrip and canceled by initialing it. If the

BUILDING A SECTION OF THE NEW RIVER DRIVE WITH CEMENT MACADAM AT MASON CITY, IOWA

1. A longitudinal center joint of the inverted dummy type was formed by nailing a 1 x 2-inch wooden strip to the subgrade. 2. Transverse joints were 1 x 6-inch boards that were placed at about 200-foot intervals. 3. Grout was hauled in a truck-mixer and discharged into the voids in the stone through a chute and distributor. 4. The grout distributor had three baffle plates to check the velocity of the grout, and holes that directed it downward

purchase amounted to less than 50 cents, two stamps were required instead of one. When the merchant passed the scrip on to his employees, or in payment for local products, he also attached a stamp.

Postscript—October 31, 1933

A total of $10,000 in scrip was issued. Five months' experience indicates that the requirement of a stamp with every transaction has not had the desired results in speeding up retirement of the issue. Because it is held in various places for mid-month and month-end payrolls and settlements, it is scarcely moving more than once a week on the average, and at the present rate it will take from ten to twelve months to rettire it.

There is considerable evasion of the stamping, and with the way the money is handled, it seems impossible to make the stamps stay on. In addition, the scrip is moving through a comparatively small number of firms, largely retail and wholesale, so that some firms and their employees are getting it all the time and others never see it.

This postscript is for the guidance of any other communities who might consider financing through scrip.

LESTER MILLIGAN.

The Menace of Tax Limitations

By MABEL L. WALKER
Executive Secretary, General Welfare Tax League

"PEOPLE are always talking about reducing taxes. Why don't the legislatures pass a law and do it?" demanded a practically minded woman farmer of Maryland a few weeks ago.

If this woman were living in any one of a number of Western and Middle Western states, her lawmakers could say to her, "We have done it!" Some, in fact, have done even more than pass a law. They have embedded forcible "economy" for local governments in the state constitution itself.

If the solution for governmental extravagance were as easy as this, we should need to worry no more about rising costs of government. All that would be necessary would be to pass rigid tax-limit laws in every state, and excessive governmental costs would become a thing of the past.

There is something strongly suggestive of the Chinese philosophy of foot-binding in this method. "Large feet for women are unsightly and ungraceful. The foot has an unfortunate habit of growing as the body grows, but we will correct this by binding it so tightly that it can never become any larger." Likewise, many earnest people who are seriously troubled by the distressing increase in governmental costs and who notice that such costs tend to increase steadily and universally, attempt to solve the problem by rigid limits upon the taxing power. The simplicity of the idea is appealing.

Ohio pioneered in this respect by adopting in 1910 the Smith one per cent law, which set up a maximum tax limitation for all governmental units of not more than one per cent of the assessed valuation. This may be increased to 1½ per cent by vote of the electorate in any taxing district. Debt charges are not included.

About a dozen states have recently enacted tax limitation laws, or have adopted constitutional amendments, some of which are very severe. The tax rate limits in Indiana are fixed at $1 per $100 of assessed valuation for counties and $1.50 for incorporated cities and towns, both rates including the 15 cent state rate limit. Iowa provides for a maximum county tax rate of 16 mills. Kansas has an elaborately classified system of limits for different governmental units. The aggregate levy, except bonds and interest, is from 9 to 10 mills in the cities. Separate rates are permitted for schools. County rates range from 3½ to 5 mills, depending upon the wealth of the county. Nevada and Texas have also recently passed tax limit measures.

In some states the tax limitation movement is so strong that the restrictions are written into the constitution. Oklahoma has a maximum levy of 27 mills on real and personal property. The limit is 15 mills on the dollar, with provision for a 10 mill district increase for schools if the people in the district so vote, and a 2 mill county increase for schools. Michigan has a constitutional limit of 15 mills. The court has ruled that cities may levy up to their charter limitations, despite the constitutional limitation.

Tax rates in West Virginia are limited to $1.50 per $100 of assessed valuation outside municipalities and $2.00 within municipalities. In Arkansas and New Mexico constitutional amendments will have to be voted upon by the people. In California a constitutional amendment limits the total amount of the state fund to be raised from general property to 25 per cent; state appropriations for the next biennium cannot be more than 5 per cent greater than the last without a two-thirds vote of the legislature; this includes debt charges.

The early fruit of some of these tax limit laws is not altogether reassuring. The Michigan law brought on the speedy adoption of a 3 per cent sales tax law, which does not even exempt food. The Indiana law threatens complete paralysis of the educational program of that state, according to Governor Paul V. McNutt. Health and welfare activities have been curtailed and discontinued. In one municipality, after the state and county taxes had been deducted from the $1.50, there was nothing left with which to maintain police protection, fire protection, street maintenance and other activities. Municipal credit has been abolished. Bond holders are bringing mandamus proceedings to force officials to levy taxes to meet bond payments now in default, and the state limitations prohibit these levies.

Recent news dispatches from West Virginia state that six municipalities have suspended normal governmental functions because they have no money to pay current running expenses. In Morgantown, municipal employees are temporarily volunteering their services without pay. Manager-Mayor Gordon P. Fought of Wheeling has discharged all city employees except those in the Water-Department, which is self-supporting. Huntington is considering putting its police and firemen on a volunteer basis. The police force has been dismissed in Clendennin, and street lights have been shut off. Prisoners were transferred from the Wyoming County jail to the state penitentiary, since the county had no money to buy food for them. Morgantown was forced to free the prisoners in its city jail, but fortunately they were only two in number, on minor charges. School officials in nearly every county are trying to find ways of keeping the schools open.

The *Arizona Taxpayers' Magazine* declared with respect to similar amendments which were proposed for that state: "The proposed amendments are in our estimation unworkable. 'All that glitters is not gold,' and, much as we desire to see public expenditures reduced wherever feasible and possible, we cannot endorse these amendments. The tree of government must be severely pruned, but not hacked down blindly."

Hagerstown, Md., Modernizes Its Sewage Treatment Plant

Many Features of Interest Include Systematized Sampling and Mechanical Filtration of Sludge

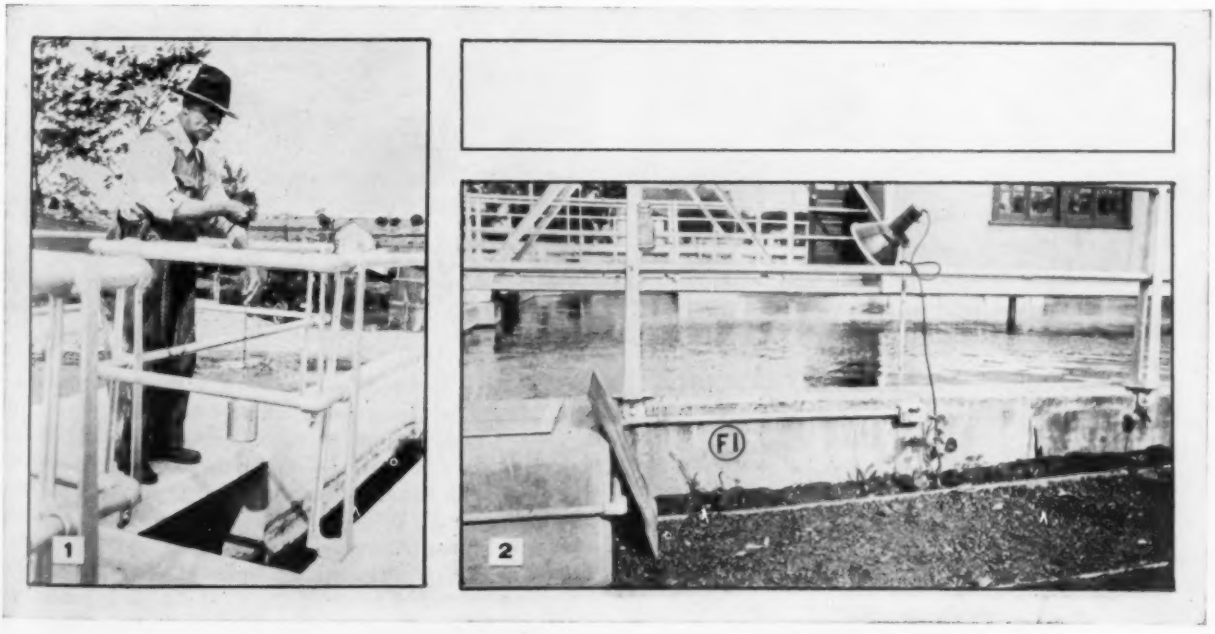
By THEODORE REED KENDALL
Engineering Editor, The American City Magazine

ONE of the first cities in the United States to install activated sludge treatment of its sewage, Hagerstown, Md., has recently renovated its treatment system which had not been operating satisfactorily so that now it has one of the most modern plants in the country. As an example of the attention to details the methods of sampling are of interest. Every sampling station is lettered and numbered with the identification painted in red on the structure in plain sight of all. The sampling equipment consists of a set of ½-gallon aluminum milk cans each with its station marked plainly so that there will be no mistake. Further, where samples require a long reach into the channel a brass chain is affixed to the rail with a snap hook on the end so that the can may be lowered without danger of the collector losing his balance. The records of operation are also made to correspond with the sampling station identifications for the sake of clarity. By this method samples can be taken readily by a laborer with a little attention to his instruction without the need of a trained engineer or chemist doing the work.

The old activated sludge plant was installed in 1924-25 and had a designed capacity of 2 million gallons daily. The renovated plant is designed to handle 8 mgd through the preliminary settling tanks but the aeration units are intended for 6 mgd capacity. The old structures and equipment were utilized as much as possible, while adding the latest ideas of treatment of both sewage and sludge to insure complete and odorless operation.

The Renovated Plant

The original Dorr drum screen has been continued in service with the screenings being pumped to the sludge liming tank on the second floor of the compressor building following the practice of some years. From the screen the sewage flows to the old grit channel, which has been reconstructed into a grease removal channel by running the sewage through the center channel, which is equipped with air diffuser plates which cause the separated grease to flow laterally through slots made by equilateral triangles of wood into the outer channels, where the grease



SAMPLING—A SURE METHOD OF CHECKING RESULTS

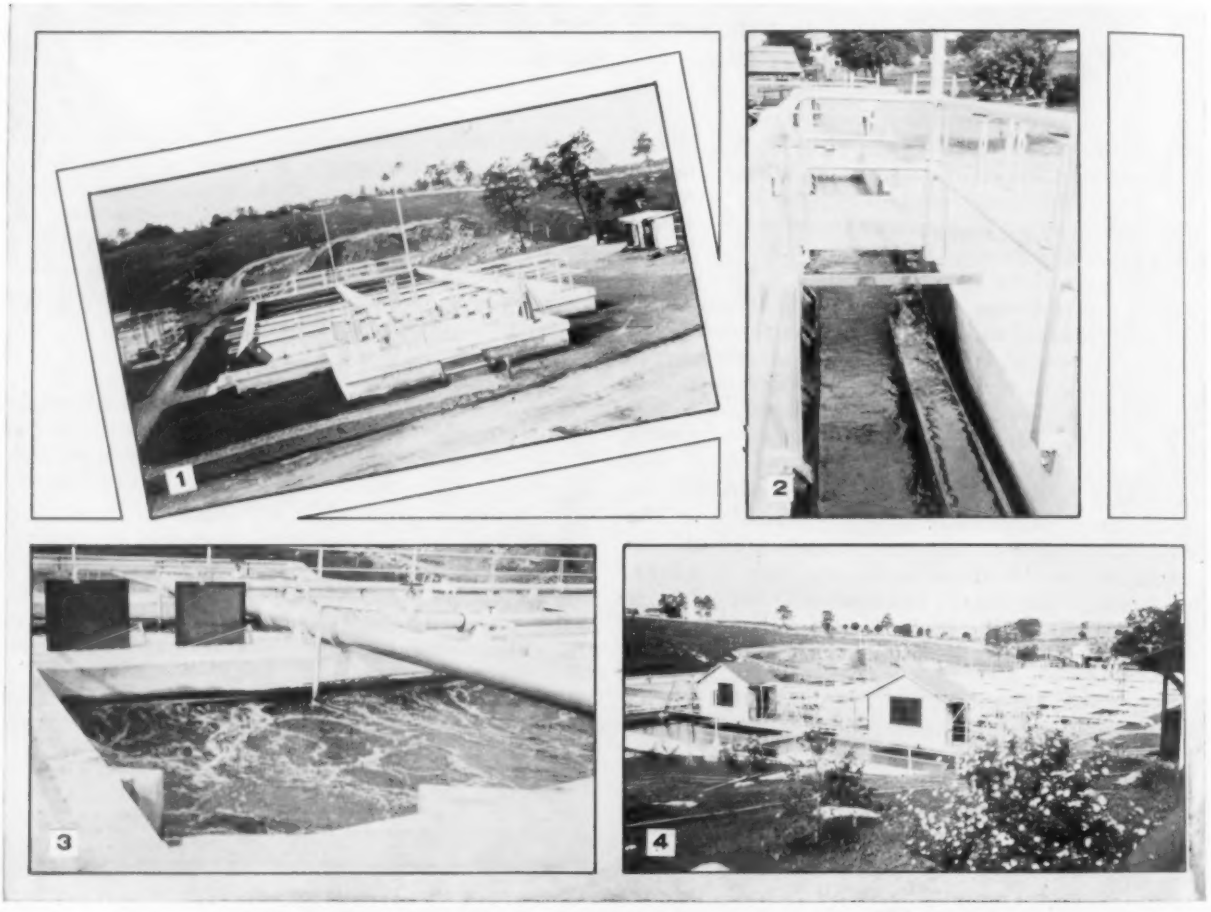
1. One of the plant helpers taking an effluent sample at Station C2, preliminary settling tank No. 2. Note the chain with snap catch to prevent loss of the sampling bucket. 2. Sampling Station F1 at the effluent channel of the secondary settling tanks. The spot light makes night sampling easier and also makes it possible to see the condition of the effluent for quick visual checking of plant operation

is held back by scum boards while the sewage flows on to the primary sedimentation tanks. In the distribution channels of the two primary tanks the excess activated sludge is mixed as a small continuous stream with the incoming sewage and is thus removed with the primary solids as sludge. Beginning with the primary tanks the plant is virtually divided into two independent batteries which can be operated in parallel in exactly the same manner or separately in different ways to determine the efficiency of any method of operation such as varied air supply, rate of sludge return, suspended solids, etc.

sludge liming tank in the compressor building by pumps located below ground level at the front end of the tanks. The control switches both for drag mechanisms and sludge pumps at the tanks are equipped with weatherproof housing. Signal lights on the outside of the building show the rate of sludge pumping and serve to control the density of sludge received at the liming tank.

Aeration Tanks

The dual aeration tanks each 123 x 50 x 15-foot flow line depth have three passes for the sewage in continuous



THE REHABILITATED ACTIVATED SLUDGE SEWAGE TREATMENT PLANT AT HAGERSTOWN

1. The primary settling tanks equipped with Link-Belt clarifiers. 2. Excess activated sludge being delivered to the influent trough of the primary settling tank. 3. A section of the aeration tank, showing the typical "pattern" of the surface of the tank. 4. A general view of the plant from the ramp of the liming house. The secondary tanks and Hardinge clarifiers are seen in the foreground, and the aeration tanks in the background, with the primary tanks at the extreme right

The flow of return activated sludge is metered as is the air consumption, the total flow of sewage and also the amount actually passing through the plant at times when the overflow weir, at the outlet of the preliminary tanks, by-passes all sewage in excess of 6 million gallons daily. The flow of sewage into the primary tanks is distributed through a perforated metal plate. The effect of the flocculent activated sludge on the raw sewage is very apparent to the eye at the effluent end of the primary tanks. The sewage still retains its characteristic gray color at this point. The effluent channels of the primary tanks are equipped with overflow weirs as mentioned above.

The sludge from the primary tanks is pumped to the

spiral flow. In order to prevent any short circuiting of the sewage in flowing through the tanks there are five baffles in each pass of the aeration tanks. The baffles are built of wood and carried down to within 14 inches of the bottom of the tank. Compressed air is admitted through the entire length of the tanks along one side through two rows of Filtros plates each measuring 12 inches wide and 1¼ inches thick set in concrete boxes of seven plates each. The typical brown color of activated sludge is evident to a marked degree early in the first of the three passes in each of the aeration units. Activated sludge is returned to the aeration tanks at the influent end and is metered with an ingenious device which records the flow at the

compressor house, maintaining an air pressure equal to the head on the sludge orifices discharging into the aeration tanks.

Secondary Settling Tanks

As in the case of the primary settling tanks and aeration tanks, the secondary settling tanks are in duplicate, and are equipped with Hardinge sludge removal units carrying the sludge to the central sumps from which it is pumped to the entrance of the aerating tanks or wasted as excess sludge into the primary settling tanks. The secondary tanks discharge over effluent weirs into a channel leading to the outfall sewer, and to Antietam Creek.

Sludge Disposal by Filtration

The original plant disposed of the sludge from the activated treatment by heavy liming and then slow air drying on open sand beds. The present method makes use of the liming tank but from this point on the treatment is distinctly new. The drying beds are to be discarded entirely, these being about the only part of the old plant that has not been used in some manner in the renovated plant. The sludge treating tank on the second floor of the compressor house has a capacity of about 10,000 gallons and receives the sludge from the primary tank, and the Dorr screenings. To each tank full of sludge lime is added and thoroughly mixed by an agitator. The sludge then flows by gravity to a tank in the sludge filtration house. Here it is filtered or dewatered to about 74 per cent moisture by a Wright or Feinc drum filter. The process consists of mixing the sludge with a predetermined amount of shredded paper in pulp form and then picking this mixture up on the drum by vacuum.

Ordinary waste paper of all kinds is stored at the plant. As required this dry paper is weighed, shredded by a Jeffrey paper shredder and mixed with sewage effluent to form a pulp. This may be either mixed with the sludge in the sludge tank or fed separately to the repulper tank over the filter drum. If the mixture is fed to the repulper the agitator in the repulper is not used but if the two streams enter separately the agitator is used to insure a homogeneous mixture flowing to the feed box below through a 4-inch pipe. From the feed box the mixture flows through three rectangular slots into the cylindrical filter tank below in which the filter drum is about 40 per cent submerged. The mixture of paper pulp and sludge is expected to be maintained at about the proportions of ¼-pound of dry paper per pound of dry sewage solids in the sludge. The exact amount is determined by the treatment of the sludge by liming and the character of the sludge itself. The aim is to reduce the amount of lime and the amount of paper required to give the most economical operation, with the best possible filtered sludge.

The filter drums, which are in duplicate, are 8½ feet in diameter and 10 feet long and are divided internally into 24 separate airtight compartments or segments each connected to two vacuum outlets for low and high vacuum. The drums are covered with perforated metal sheets and over them is the filter cloth known as "Sun Cloth," a cotton muslin with 42 threads to the inch. Over the cloth are strings on ½-inch centers running around the drum and out over the discharge roll at the edge of the dried sludge hoppers and then back around a return roll and onto the drum again. The strings pick off the dried sludge cake and permit it to tear off from its own weight and fall into the hoppers.

In operation the filter drum is turned through the filter tank which is filled with the mixture of sludge and pulp. The segments of the drum which are immersed in the sludge are under a vacuum of 15 to 20 inches which picks up a considerable quantity of the wet mixture. On the first "surge" of water through the filter cloth a considerable quantity of colloidal matter passes through the cloth but this is quickly checked by the deposit of paper pulp on the cloth which then acts as the filter medium. As the segments emerge from the filter tank the vacuum is automatically increased through an interchange of ports to 26 inches which continues until just before the blanket of sludge cake is picked off the drum by the strings. At a point a little more than 45 degrees above the horizontal on the rising side is a light roll which exerts a pressure of 3½ pounds per linear inch on a canvas compression belt which is carried around the drum while it is not submerged. A second compression roll exerting a pressure of 6 pounds per linear inch is located just beyond the top point of the drum. These act as aids in squeezing out the water or forcing it towards the drum where the vacuum can take it out more readily. The final cake from the drum as delivered to the hoppers is from 1/16 to 3/16 inch thick with a moisture content of about 73 to 70 per cent, the latter being the optimum desired at this plant. The sludge cake is discharged from the hoppers into trucks and weighed to complete the very full records kept at the plant of every operation, power, sewage, sludge, and character of the sludge, as well as chemical and physical characteristics of the sewage at all points in the plant.

Compressor and Vacuum Equipment

In the compressor house there are two Ingersoll-Rand low pressure blowers for supplying the air at 8 pounds pressure for the aeration tanks and channels. In addition there is a Sullivan high pressure compressor from the old plant which has proved very useful in blowing out clogged lines, drilling rock, etc. In the sludge filter house there are two Ingersoll-Rand vacuum pumps for the sludge filters.

The equipment of this new plant includes a well-designed and equipped sewage laboratory which contains all the apparatus needed for determining the chemical and physical characteristics of the sewage and sludge from raw sewage to final effluent.

Personnel

The plant was designed by Fuller & McClintock, Consulting Engineers, New York City, and construction was supervised by the same firm represented locally by K. K. King, Resident Engineer. The general contractor on the new work was J. B. Ferguson of Hagerstown, Md. The new plant, which was put in full service May 10, 1933, is in charge of H. E. Rhode, Superintendent, under the general supervision of Samuel Greenewalt, City Engineer.

Sewage and Garbage Collection and Disposal

See Section 7 of the 1933 Municipal Index, pages 343-348.

The Opportunity Offered by Motorcycles to Law-Enforcing Agencies

By INSPECTOR B. A. LAMB
Commanding the Traffic Bureau of the Metropolitan Police Department of the District of Columbia

FORTUNATE indeed is the police department that has a well-trained and efficient corps of motorcycle officers at its disposal, for the use of motorcycles by traffic officers and highway patrols in the enforcement of traffic regulations where the movement of the vehicle is involved, is now the universal custom.

The very presence of the well-groomed officer in his natty uniform, mounted on his well-kept motorcycle and trained to efficiency, is a deterrent to traffic violations. The best proof of his value is the fact that no state having established a highway patrol system has ever seriously considered disbanding the organization. On the contrary, almost without exception the number of men has been increased and the quality of their equipment has been improved. It is evident that motorcycle officers are here to stay, and the prediction is made that they will be even more important in the future.

The most important advantage possessed by the motorcycle officer is the fact that he is instantly recognized as an officer and serves as a constant reminder that the streets are patrolled. He promotes safety simply by being there. It has been conclusively demonstrated that the presence of motorcycle officers on highways and at important intersecting roads reduces traffic accidents, and from personal observation I am convinced that the presence of a uniformed motorcycle officer on a highway has a greater restraining influence on the reckless and careless driver than can be secured by any other means available. When streets and highways are motorcycle patrolled, motorists drive carefully. When motorists drive carefully, accidents are fewer. Only the motorcycle officer possesses this power of control, because only he is at once seen to be an officer.

The motorcycle is the most practical mount for patrol and pursuit in present-day traffic. The motorcycle officer slips through congested traffic without endangering his own life or the safety of motorists. When policemen are in cars, they frequently become a part of the very problem they are supposed to alleviate.

The use of motorcycles conserves man power. With cars it is the accepted practice to assign two men to each car, one as an observer, the other as chauffeur. The motorcycle officer is both pilot and observer. His vision is unobstructed. His mount is compact, flexible, and easily maneuvered. This comparison between an automobile and a motorcycle refers only to those vehicles when used primarily in traffic law enforcement, and does not apply to the automobile equipped with radio and used in general law enforcement.

Recent experiment with radio on a motorcycle has been marked with a certain degree of success. Radio can be used effectively in dispatching a motorcycle officer to some given point where a serious accident has occurred, or where a motorcycle officer is needed to relieve traffic congestion.

The dangers of mistaken identity are entirely absent when highways are patrolled by motorcycle officers properly uniformed. The officer pursuing a motorist for any reason cannot be mistaken for a hold-up man; nor can a bandit or hold-up man pose as an officer.

The motorcycle officer is instructed to be most courteous to those with whom he comes in contact, for the entire personnel is likely to be judged by the conduct of the individual officer. His usual duties consist in enforcing traffic regulations; educating motorists on traffic laws and regulations; protecting highways against damage by weighing suspected overloaded trucks (usually a special squad); keeping traffic moving at an orderly pace; investigating accidents on highways; protecting children at school crossings; escorting school busses; rendering first aid to injured; recovering stolen automobiles; making emergency calls; performing escort duty for public and official functions; giving information to motorists regarding routes, etc.; apprehending speeders, reckless drivers and other violators of the traffic regulations; pursuing and apprehending criminals; and other duties as the various jurisdictions may demand. The duties of highway patrol officers vary greatly in different states, depending on the make-up of the organization.

It will be readily seen, however, that even in an organization limiting his authority to the patrolling of highways, the motorcycle officer performs a wide range of useful service. Where it is desirable that men travel in pairs, machines are equipped with side-cars. Excellent results are also obtained by motorcycle officers patrolling congested areas in large cities. They have the ability to cover a vast area, and confine their efforts mostly to the prevention of illegal parking, where such parking retards the flow of traffic.

ONE OF THE MOTORCYCLES WHICH AID TRAFFIC ENFORCEMENT IN THE NATIONAL CAPITAL

FORWARD STEPS

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

Community Hospital Dedicated

HUNTINGTON, LONG ISLAND, N. Y.—On September 23, 1933, the new Huntington Community Hospital was opened to the public. Its inception may be traced back to 1916, when a hospital of 18 adult beds capacity was erected, endowed and presented to an association for service to the people of the town. By various artifices the capacity of that building was expanded to meet the increasing demands placed upon it. But though 31 adult beds was its highest rated capacity, the average daily census for the past three years has been 45 patients.

In 1929 the Chamber of Commerce successfully concluded the financing and erection of a modern, fireproof community hotel. At the conclusion of that project the Board of Directors of the Hospital Association requested the Chamber to undertake a survey of the hospital needs of the town. With proper expert advice, a committee of the Chamber complied with that request, and recommended the abandonment of the existing, non-fireproof building and the erection of a new hospital of 100 adult-beds capacity.

Upon receipt of these recommendations the Chamber was requested to undertake a campaign to carry out its recommendations. After delays incurred by unfavorable economic conditions, such a campaign was launched in the summer of 1931. The goal was $850,000. Of this amount, $600,000 was to be for building, and $250,000 to add to endowment. The Directors of the Chamber and a few generous citizens provided an independent fund of $35,000 to defray the necessary expenses of the campaign.

The opening day of the campaign happened to be the day President Hoover announced the international war-debt moratorium. In such an atmosphere it was considered somewhat remarkable that the subscriptions of the campaign amounted to $430,000 when it was definitely terminated in September of that year. Pledges were made on a basis of six semi-annual payments.

While gratifying, this result was hardly conclusive. But as months went by, it became evident that the conditions which had militated against success in the campaign had a compensating factor in reduced building costs. In the spring of 1932 the original plans were revised so that, by the elimination of one proposed wing, a building of 70 adult-beds capacity could be provided without sacrificing any essential features. On the basis of these plans, bids were sought and a contract awarded on November 1 last.

The total cost of building, equipment, landscaping and all incidentals will be approximately $300,000. Payments on pledges assure funds sufficient to pay all costs and add approximately $50,000 to endowment.

In addition to the financing and erection of the building, the Chamber carried through a complete reorganization of the Hospital Medical Staff and Board of Directors, and a revision of the rules governing the conduct of the Hospital.

The architects were Messrs. Crow, Lewis and Wick, of New York City, who specialize in hospital construction. Dr. S. S. Goldwater, eminent hospital consultant of New York, was consultant on the planning and reorganization. Doctor Goldwater has since become a valuable member of the new Board of Directors which now controls and manages the hospital.

P. J. PERINCHIEF,
Secretary.

HUNTINGTON'S NEW HOSPITAL

A Sympathetic Street Department

SOUTH ORANGE, N. J.—Sympathy and a Street Department! They don't seem to have much in common, do they? Let's see—

The dictionary says that to be "sympathetic" means "to be sensitive to or be affected by emotions of others." While we usually think of sympathy in connection with sad occasions, the definition tells us that happy ones may very properly be included.

Since the Street Department of the village of South Orange, N. J., takes a broad view of many things, it may rightfully look at sympathy, too, from a wide angle. And so it is my purpose to reveal how we, in our village, find it not only possible but profitable to bring sympathy into play for the benefit of all concerned, even in such a prosaic department as that having to do with street activities. My idea of public service is not the limited one of performing just those duties and tasks that legislation permits us to do. In fact, I think we may do almost anything that we are not prevented from doing by legislation.

Our 1930 population was 13,630, and our per capita wealth is high. Our citizens want good service, and the majority do not object to paying for it. We have always encouraged close personal relations between the citizens and officials, who like to receive personal requests from them. Our Village President, Trustees, members of various commissions, etc., serve without pay, they do not put in expense accounts, they provide their own stenographers and auto costs, and so have accustomed themselves to the idea of giving extra service.

Our Street Committee provides the usual work of a municipal street department. In addition, it performs regularly and at varied times all sorts of other odd-jobs. It is the latter that helps us to earn the "sympathetic" suggested in our title. All could not be listed, as some are trivial, some almost too personal to be legal for public funds, many too passing to record either on paper or in memory.

Here are listed some of these efforts.

Citizens are advised on the construction and care of private driveways.

The Municipal Relief Director and the Garden Club are aided in many ways in connection with relief gardens.

Our station was used as a club for the unemployed last winter.

We delivered all Red Cross flour, and distributed and picked up clothes donated on Bundle Day.

If you are a visitor to the village, and stall or break down on our streets, one of our rigs will tow you, or get gas, or stand by to help however possible. If the driver cannot, because of cost or time, or the nature of his own work,

he will at least make friendly inquiry as to what is needed, and make 'phone calls for you.

On order, we clean vacant lots for pay, and erect a sign indicating the owner's cooperation.

Our roller or other apparatus is rented to citizens or neighbors.

We call at homes on the occasion of deaths, weddings, etc., to offer special services that may be required.

We pump out flooded cellars, and permit use of our garage, if private ones are blocked by road work.

We cooperate with the Chamber of Commerce and other organizations, and our Junk Junket, arranged with the local movie house, in connection with Clean-up Week, is an annual event.

The Department trucks are equipped with first-aid outfits, and the men are graduates of a first-aid course.

When principal streets are repaved, we ask for patience and consideration from residents, storekeepers, police, public utilities, etc. Advance notice is given of paving and repairing plans, so that arrangements may be made to partly overcome nuisance.

We have placed on the curb, free, each house number, for the convenience of visitors, delivery men and others, and are now placing names of principal buildings on curbs also. This is an unusual help at night.

An abandoned cemetery is cared for the year round, and especially on Memorial Day.

Our trucks carry signs that their drivers have been instructed to be polite.

Snow is cleaned from church streets and sidewalks first.

Blown-down trees are removed for the wood, which is cut and given to the poor.

On all holidays and other occasions we put up sidewalk American flags, which we store and care for throughout the year.

We secure our auto licenses the first day they are available, and display them the first day possible, as a good example.

When State Safety Inspections are ordered, the Department is first to offer its vehicles for examination.

We paint the Red Cross on smooth pavements to help that organization's campaign.

The Chamber of Commerce Safety Council billboards are maintained.

Our trucks are used, under relief authority's supervision, to move poor families.

The Street Superintendent, Thomas F. Fitzsimmons, genial and sympathetic Irish-American, is supplied with cards which give his home address and telephone number, for emergency calls. He visits new families on their arrival in the village, to advise them of services and offers to help in any way we can. Usually there is some surplus packing material to be removed.

To help the Health Department in its fight against hay fever, our men remove ragweed from public property, and, on request, from private property also, at cost.

We erect reviewing stands for parades or holiday celebrations, help at Scout Rallies, egg hunts, high school band concerts, etc.

Many of these activities, such as setting up street barricades, are performed in cooperation with the police.

Canvas covers have been lent for broken store windows, for salvage and other purposes, following storms.

Objectionable writing is removed from sidewalks.

We erected the "Save South Orange Children" signs for the American Legion.

Boulders have been placed on lawns and high gutters to protect against skidding autos and water from the hills.

For children's safety, we fill with street sweepings old wells and cisterns.

We have designed and helped to construct at cost, walls along the Rahway River, the bed of which we clear.

Signs and catch-basins, etc., that interfere with entrances, are removed.

Emergency directional street marks for special occasions are supplied.

As has been stated, all the ordinary street department duties are discharged. We give sympathetic touches to them, by keeping emergency drivers available for sanding streets in skiddy weather, and removing glass and cars after accidents. Our trucks and other apparatus are lent to other village departments. We also purchase and store materials for them and repair their equipment in our shop.

The Department clerk has an index of officials, with 'phone numbers, and information is given to the citizens about many items outside our sphere of work.

Suggestion contests are conducted with prizes. Our rigs carry safety signs, indicating that they have not had an accident in ever so long. A bonus has been given for this record.

Our men put in time cards. We use bulletin boards, on which letters are posted from citizens, thanking our men for good work done, and have many other fixings that well-conducted business organizations find worth while.

Our service station is effectively equipped for work. As village restaurants close early, we have cooking arrangements for feeding men who are working at night on snow removal. There is a radio for storm reports. Some of the Uniform Street Record forms are used.

Without doubt, some of you have been adding up, and wondering if being sympathetic pays. I believe it does, for we have been able to reduce our budget and do more work each year. The impression on the taxpayers and our own organization, and the good-will we feel has been created, more than pays for the money spent. During the six years that the author has been Chairman of the Street Committee, the village budget has been reduced from $85,000 to $28,800. Most of this saving was not made in the last two years, when pressure was brought to bear for reduced expenses, but has been spread over each of the six years. During the same period, we have completely equipped the Department out of these budget funds. We have purchased three trucks, a street sweeper, and many other pieces of equipment.

As I am always on the lookout for new ideas or ways to improve or increase the service, I should appreciate sympathetic advice from any reader.

PETER A. SMITH,
Village Trustee.

Chamber of Commerce, Boy Scouts and NRA

SAN DIEGO, CALIF.—A graphic illustration of the effective manner in which Boy Scouts can be inducted into a state or national campaign was demonstrated at San Diego during the National Industrial Recovery drive.

In accordance with the expressed wishes of President Roosevelt, the San Diego Chamber of Commerce was designated as the point in which the campaign was to be centralized in that community.

Among the first organizations drafted to assist in this work were the San Diego units of the Boy Scouts of America. To them was entrusted the task of making a house-to-house canvass, inducing all home owners to immediately place the Blue Eagle in their homes, and asking their cooperation in aiding unemployment.

The Boy Scouts secured the names of 35,000 home owners. Then began the second phase of the campaign. With approximately 99 per cent of San Diego homes Blue Eagled, the services of 300 civic-minded women was secured by the Chamber of Commerce to mail 35,000 postcards. Marked on these postcards was a list of 14 items ranging from repainting and refurnishing the home to repairs to autos and garages. These "We Help" postcards were then returned to the Chamber of Commerce by franked mail and turned over to tradesmen and men seeking work. Definite figures indicated that no fewer than 700 men, many of whom had been unemployed for more than a year, were given lucrative work, with the total amount of repair work to homes and business buildings aggregating $75,000.

Simultaneously with the "We Help" postcard drive was conducted a campaign, instigated principally by the various merchants under the guidance of a special Chamber of Commerce committee to stimulate buying over a two-week period. It was the consensus that this would be more effective than to concentrate on a single Dollar Day bargain sale. The city's main business district was decorated during this period, and Mayor John F. Forward issued a proclamation urging citizens to take full advantage of the opportunities offered for judicious buying. This campaign also was eminently successful.

HOWARD MORIN.

Recent City Manager Appointments

Grant Bly, formerly City Clerk of De Land, Fla., has been appointed City Manager of that city.

George B. Ingersoll became City Manager of Beloit, Wis., on October 9. He was a member of the Beloit City Council for eleven years, and City Clerk for six years.

Dan P. Kinney succeeds Fred W. Pease as City Manager of Porterville, Calif.

C. W. Koiner, City Manager of Pasadena, Calif., from May, 1921, to August, 1925, has again been appointed City Manager of that city, effective January 1, 1934.

O. M. Mosier succeeded Albert L. McRill as City Manager of Oklahoma City, in September.

W. A. Pearson, City Superintendent of Building, on October 1 succeeded W. L. Murdock as City Manager of Compton, Calif.

Oliver A. Pettengill, recently appointed City Manager of Rumford, Maine, was formerly Manager of Rumford Falls Village, Maine.

O. L. Robey has succeeded W. O. Garrett as City Manager of Maryville, Mo.

Thomas J. Thompson was appointed City Manager of Norfolk, Va., on October 16, succeeding I. Walke Truxton.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

TRAFFIC CONTROL AND FACILITATION

Conducted by Publications Committee, Institute of Traffic Engineers, 175 Fifth Ave., New York

Maxwell Halsey, Chairman, Harry Hemmings, Reyburn Hoffman, Benoit Laberge, Theodore T. McCrosky, Donald M. McNeil, A. J. Naquin, Hawley S. Simpson, Arthur G. Straetz, Peter J. Stupka, Lawrence S. Tuttle, John C. Wrighton

Effect of Signalization on Motor-Vehicle Accident Experience

By **ARNOLD H. VEY**

Traffic Engineer, Department of Motor Vehicles, State of New Jersey

IT seems to be generally believed by citizens and public officials that all that is required to eliminate accidents at street intersections is to erect traffic control signals, regardless of the inherent characteristics of the crossing, its traffic volume, and the type and number of accidents which may have been experienced.

In many cases, this has been the general past application of traffic control signals. Has such a program brought about the hoped for desirable results? Let us review the material and facts included in three independent "before" and "after" studies made in different sections of the country and observe the usefulness of the signals, from the viewpoint both of accident prevention and traffic expedition.

The study covering the greatest number of intersections was made by the National Safety Council in 22 cities throughout the country, including Chicago, Detroit, St. Louis, Buffalo and Baltimore. This survey included 354 intersections and was based on accident statistics, in some cases, for more than a year both before and after signalization.

The second study was made by the Traffic Engineering Department of the city of Philadelphia and included 190 crossings.

The third study was made in the city of Trenton, N. J., and included 55 crossings. Each of the latter two studies was based upon accident statistics gathered for a complete year before and after signals were installed at the crossings.

Table No. 1 shows a comparison of the general results of these three independent "before" and "after" signalization studies.

The data compiled in the National Safety Council survey do not permit the same comparison of the percentage change for intersections having different accident rates before signalization as in each of the other two surveys. The National Safety Council survey did show, however, that, as a whole, accidents decreased after the installation of signals by slightly more than 20 per cent. Some intersections showed decreases of as much as 80 per cent, and others showed increases of 400 per cent or more.

The Philadelphia survey showed a general decrease of 15.5 per cent after signalization, while the Trenton survey revealed a reduction of 28 per cent in accidents.

Figure 1 indicates, graphically, the percentage change in the number of accidents following the installation of signals at intersections having different accident frequencies for both the Philadelphia and the Trenton survey. It will be noted that, in general, the results are surprisingly close, particularly in the groups of intersections having lower accident frequencies.

Comparison of Results by Groups of Intersections Based Upon Accident Frequencies

Table 2 shows the percentage change in the accident experience at groups of intersections in the Philadelphia and Trenton surveys, classified by accident frequencies; namely, those intersections which had 3 or less accidents the year before signals were installed, those that had 4 to 5 accidents inclusive before signalization, and those that had more than 5.

TABLE 1—COMPARISON OF GENERAL RESULTS OBTAINED AFTER SIGNALIZATION IN THREE INDEPENDENT STUDIES

Location of Studies	No. of Intersections	Intersections Showing Increase		Intersections Showing Decrease		Intersections Showing No Change	
		Number	% of Total	Number	% of Total	Number	% of Total
1. National Safety Council	354	135	38	219	62		
2. Philadelphia, Pa.	190	65	34	103	54	22	12
3. Trenton, N. J.	55	16	29	31	56	8	15
Total	599	216	36	353	59	30	5

TABLE 2—COMPARISON OF PERCENTAGE CHANGE IN ACCIDENT EXPERIENCE AFTER THE INSTALLATION OF TRAFFIC CONTROL SIGNALS

INTERSECTIONS GROUPED BY ACCIDENT FREQUENCY BEFORE SIGNALS WERE INSTALLED

Accident Frequency	No. of Intersections		No. of Accidents Before		No. of Accidents After		Percentage Change	
	Phila. Survey	Trenton Survey	Phila. Survey	Trenton Survey	Phila. Survey	Trenton Survey	Phila. Survey	Trenton Survey
3 or less	74	22	134	30	186	51	+39%	+70%
4 to 5 inclusive	25	14	116	48	89	39	—23%	—19%
More than 5	91	19	1387	164	1108	83	—20%	—49%
Total	190	55	1637	242	1383	173	—16%	—28%

This analysis indicates that those intersections which had the least accident frequency, ranging from 0 to 3 accidents the year before signals were installed, showed a greater accident experience after the installation of signals, or, in other words, instead of the traffic control signals causing a decrease in accidents, there was a decided increase.

Comparison of Percentage Change by Accident Types After the Installation of Traffic Control Signals

An investigation of the accident experience both before and after the installation of signals segregated into four groups or types of accidents for both the Philadelphia and Trenton surveys reveals much of interest.

It was found that traffic control signals had a decided curtailing effect upon collisions between vehicles approaching at right angles to one another. For example, the Philadelphia survey indicates a 51 per cent reduction in this type of collision for the year after signals were installed compared with the previous year. In the Trenton survey, there was an even greater reduction, namely, 62 per cent, or an average reduction for each of the two studies of 56 per cent.

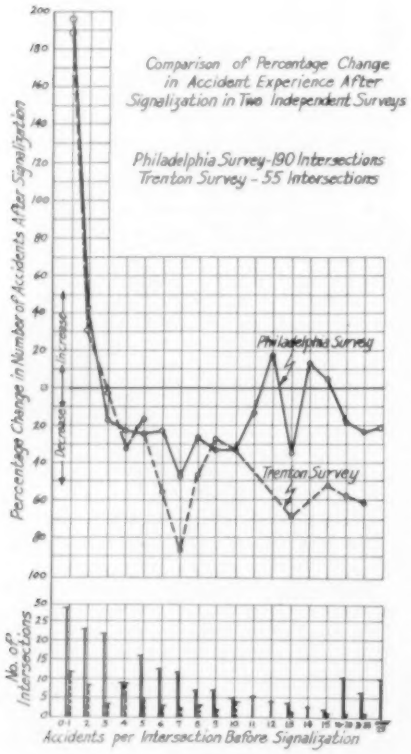
In the case of the rear-end collisions, there was an increase of 46 per cent for the Philadelphia survey, while in the Trenton survey there was no change, there being 26 accidents of this type in each year.

Under the classification of pedestrian accidents, there was a decrease of 4 per cent in Philadelphia in the year after signals were installed, while in Trenton there was an increase of 24 per cent. Though the results of the two surveys do not closely agree, it may be said that traffic control signals did not effectively curtail accidents in which pedestrians were involved. The probable cause for the wide difference between the results of the two surveys for this type of accident is that in Philadelphia, where the flow of vehicular traffic through the majority of intersections included in the survey was undoubtedly considerably greater than in the case of the Trenton survey, pedestrians, in order to safeguard themselves properly when using such crossings, were compelled to give better attention to the signal commands.

Under the classification "All Other Accidents" there was a 34 per cent decrease for the Philadelphia survey and a 42 per cent increase for the Trenton survey. It is difficult to state accurately the causes in the wide variation of these results, as this classification would include accidents such as head-on collisions, collisions between vehicles approaching in opposite directions where one vehicle was making or attempting to make a left turn, or where both vehicles

were making or attempting to make left turns, collisions with fixed objects and other miscellaneous accidents, all of which are types of accidents not normally prevented by traffic control signals. As a matter of fact, signals many times may cause increases in accidents under some of these types rather than decreases.

The Trenton survey showed a 52 per cent increase in collisions between vehicles approaching in opposite directions where one vehicle was making a left turn, and also an increase in head-on collisions. The variation in street traffic regulations, traffic volume, speed, type of district, etc., are probably the causes of the wide differences in the results of the two surveys for accidents under this classification.


Comparison of Percentage Change in Accident Experience After Signalization in Two Independent Surveys
Philadelphia Survey-190 Intersections
Trenton Survey - 55 Intersections
Percentage Change in Number of Accidents After Signalization
Philadelphia Survey
Trenton Survey
Increase
Decrease
No. of Intersections
Accidents per Intersection Before Signalization

From our studies of traffic and accidents we are of the opinion that certain definite requirements and characteristics should first be determined and analyzed before erecting and operating traffic control signals at street intersections. These include:

1. Accident experience for a sufficient past period.

2. The volume and type of traffic movements, including pedestrians as well as vehicles.

3. The proper type of signal to give the greatest expedition of traffic flow at the crossing with safety.

4. The proper location of signal units in order that they may be readily distinguishable and discernible to motorists and pedestrians using the crossing.

5. The proper timing of signal intervals for the intersecting roadways in order to adequately regulate the conflicting flows of traffic without creating unnecessary delay or stop time, and at the same time giving sufficient time to each of the roadways in question to prevent congestion.

6. The display of the AMBER indication for a sufficient length of time to properly inform motorists of the change in the Go interval, giving consideration to the average speed of traffic through the crossing in question.

7. Determine the necessity of maintaining police supervision, supplementing the signal commands, to permit proper protection to left-turn vehicular movements and pedestrian traffic.

8. Maintain constant supervision over the signal operation, determining the necessity for modification in the operation to meet changing traffic conditions.

Abstracted from a paper presented before the Fourth Annual Meeting of the Institute of Traffic Engineers, Chicago, Ill., October 5, 1933.

National Traffic Safety Contest

JOHN M. EDY, City Manager of Dallas, Texas, Chairman of the Committee on the National Traffic Safety Contest, reported to the National Safety Congress, last month, that the contest cities which carried on safety activities throughout the year scored a 16 per cent reduction in motor-vehicle deaths during 1932, as against a 9 per cent reduction in all cities reporting to the U. S. Census Bureau.

Seventy of the 451 cities which participated in the Contest conducted by the National Safety Council during 1932, averaged a 23 per cent reduction in highway fatalities. It was significant that among the cities of over 100,000, every city which put on a vigorous highway safety campaign was successful in reducing its accidents.

Federal Highway Funds for Streets and Bridges Within City Limits

SINCE publication in the October number (page 11) of replies from 22 State Highway Engineers as to the use within city limits of Federal highway funds, as authorized in the National Industrial Recovery Act, the following additional replies have been received:

GEORGIA, E. N. Seymour, Office Engineer, State Highway Board.—"Our program provides for spending 27 per cent of our funds, which amounts to a little over 2½ million dollars, within municipalities. A major portion of this will be used to pave streets which have not been previously paved, and a small portion to correct traffic hazards which now exist."

INDIANA, M. R. Keefe, Chief Engineer, State Highway Commission.—"It has been decided to use 48 per cent for paving of Federal routes through municipalities having a population of 3,500 or more, 47 per cent for the connecting up and improvement of Federal routes outside of cities, and 5 per cent for the building of feeder roads. The improvement of streets in municipalities will be done in about 70 cities in the state. This improvement consists of rebuilding streets and some resurfacing work. The State Highway Commission is asking the cities to pass certain ordinances for the control of parking privileges and for the location of traffic lights. . . . We are insisting that all traffic lights mounted on pedestals at street intersections be removed, leaving a clear traffic way. Where we feel traffic lights are necessary, we are insisting they be placed overhead or on street corners of intersection. We contemplate the construction of some 35 grade separation projects, some within and some without the municipalities."

MAINE, Lucius D. Barrows, Chief Engineer, State Highway Commission.—"The allotment to Maine under Section 204 of the National Industrial Recovery Act was $3,369,917. . . . For the construction of projects within the corporate limits of municipalities, the preliminary program provided for $761,500 for highway or street construction, and $80,979 for bridge construction. The municipal program involved about twenty highway projects and two bridge projects, including approximately 8.22 miles of concrete, 7.99 miles of bituminous macadam, and 1.57 miles of widening. It is probable that it will be found necessary as work progresses to revise the program slightly."

MARYLAND, H. D. Williar, Jr., Chief Engineer, State Roads Commission.—"Of Maryland's share (approximately $3,600,000) of the $400,000,000 Federal grant for highway construction, 25 per cent, or $891,000, has been allocated to the construction of highways within the corporate limits of municipalities."

MICHIGAN, H. C. Coons, Deputy Commissioner-Chief Engineer, Highway Department.—"Thirty-five per cent of Michigan's allocation of National Recovery highway funds will be expended within the corporate limits of municipalities."

MINNESOTA, J. T. Ellison, Chief Engineer, Department of Highways.—"The Minnesota Highway Department has submitted a program of municipal projects under the NIRA which provides for the expenditure of $4,123,000 out of the total allotment to Minnesota of $10,656,000, for construction within municipalities. The municipal projects in this program include grade eliminations, landscaping, new pavements and reconstruction or resurfacing of old pavements."

MISSISSIPPI, G. A. Draper, Chief Engineer, State Highway Department.—"We will comply with the rules and regulations governing our share of the Public Works funds, which require that 25 per cent of the total fund be used within corporate limits of the municipalities."

NEW JERSEY, Major William G. Sloan, State Highway Engineer.—An illustrated article by Major Sloan appears on page 49 of this issue.

NEW MEXICO, G. D. Macy, State Highway Engineer.—"New Mexico's allotment of National Recovery highway funds for municipal projects totals $1,448,234. . . . While New Mexico contains only 3 cities of 10,000 or more, 31 municipalities are scheduled for road improvements, including oiling, paving, bridges and grade separations. Contracts have already been let or are advertised for bids in 7 towns and cities. These and others contemplated for early letting will provide winter employment in the more populous areas, thus relieving the economic situation in these centers to a noticeable degree."

NEW YORK, A. W. Brandt, Commissioner, Division of Highways.—"We have allotted to upstate cities approximately $2,900,000 from our allocation under Section 204 of the NIRA, and to New York City $3,250,000, or a total of $5,150,000 to cities."

NORTH DAKOTA, H. C. Frahm, Chief Engineer, State Highway Department. — "Approximately $1,450,000 has been allotted for expenditure within incorporated cities. The projects include grading, paving, widening, reconstruction and resurfacing of old pavements, grade separations and landscaping."

TENNESSEE, John L. Neely, Jr., Office Engineer, Department of Highways and Public Works.—"On the basis of the regulations of the U. S. Bureau of Public Roads, our program has allotted to improvements within city limits 25 per cent of the funds."

TEXAS, T. J. Kelly, Engineer, Road Design, State Highway Department.—"In accordance with regulations of the NIRA, 25 per cent of the $24,244,024 allotted, or $6,061,006, is allocated for the improvement of traffic conditions within municipalities."

City Planning Merges into National Planning

"IF city planning has been worth while, why not go in for national planning?" asked Secretary of the Interior Harold L. Ickes, in his inspiring address before the joint annual convention of the National Conference on City Planning and the American Civic Association, in Baltimore, October 9. Answering his own question, Secretary Ickes said:

"The determination to embark on an extensive program of public works has furnished us with both the occasion and the means of making at least a tentative beginning in the direction of national planning. It is true that it would have been far better if a National Planning Board had been set up years ago which would have had ready a chart to guide us in our undertaking of a speedy and widespread building program of public works. But since it was not done when it should have been done, it ought to be done now, and it is being done now. Early in the Administration, under Title II of the National Industrial Recovery Act, by the authority of the President, the National Planning Board was appointed. It is a going concern, an integral part of our Public Works Administration, and we hope that long after the necessity for stimulating industry and creating new buying power by a comprehensive system of public works shall be a thing of the past, national planning will go on as a permanent Government institution. . . . .

"Not only are we studying our rivers as entities with a view to instituting only such public works in connection therewith as will be for the best good of the entire rivershed, but we are seriously addressing ourselves to the matter of highways. Heretofore highways have been more or less of a crazy-quilt affair. The politician with the strongest pull has been able to entice a concrete road into his community or past his farm even although from an engineering and a social standpoint the road should have run elsewhere. When we allocated $400,000,000 out of the public works fund for roads in the various states, we stipulated that primarily this money should not be used to build a little bit of road in this township and an unconnected mile of road in the adjoining township, but to join arterial highways, to connect up main roads already partly constructed, so as to work towards a comprehensive and logical network of roads throughout the country. There has been urged upon us for serious consideration from many quarters the building of at least one super-highway all the way across the country from which branch roads at appropriate points could diverge. That at least such a transcontinental arterial highway will be built in the future there can be no doubt, thus presenting a problem that the National Planning Board should lose no time in studying.

"In addition to rivers and roads there is a wide range of subjects which the National Planning Board may properly consider. Questions of transportation and distribution and cost of electric current can well come within its purview as having an important bearing upon community life. Redistribution of population, the necessity and practicability of reclamation projects, harbor improvements, public buildings, the correction of soil erosion, all can be studied by this Board to the profit of the nation. In fact, it is difficult to think of any domestic interest or activity in which the National Government is concerned which might not first be submitted to the careful scrutiny of the National Planning Board.

"Intelligent and comprehensive planning on a national scale fits into the social vision of the future. If, as I believe, we are now definitely committed to the testing of new social values; if we have turned our backs for all time on the dreadful implications in the expression 'rugged individualism'; if we have firmly set our feet to tread a new and more desirable social path; if we have given over the feeding not only ourselves but our women and our children to the gluttony of ruthless industrialism; if it is our purpose to make industrialism serve humanity, then national planning will become a major governmental activity. . . . .

"A new day is coming, a day of greater leisure for the average man and of more intelligent use of that leisure. The tremendous recreational, scenic and esthetic resources that we have must be put to their full use. First, of all, we must preserve them for future generations. We have already made a notable beginning along this line. Our vast system of national parks and monuments and forests already assures for all time to future generations the preservation of the natural beauties and wonders and historic values that are contained in those areas. But we must create more national parks. We must set aside more national monuments. We must add to our national forests. In doing this we shall be working along sound economic lines. Most of the areas that are adapted for national parks and monuments and forests are ill-adapted for agriculture. Submarginal lands on which people in vain have been trying to eke out a bare existence can be made to serve a social and an economic purpose, while the farmers struggling to raise a reluctant crop from sterile soil can be moved to other lands of greater productivity.

"While some of us are busy piling up sand bags to repair the breach through which the waters have been rushing to our economic distress, it is sound statesmanship to designate a group of men to look into the future and plan for a happier day, because that happier day will inevitably come, and when it does come we want to be in a position to offer to all the people fuller opportunities for happier lives than we have ever had in the past. As architects building a habitation for a new social order, the members of the National Planning Board, and those associated with them, have, it seems to me, the most worth-while and inspiring job in the United States today."

A Comment on the Griffith-Adams Debate

To the Editor of THE AMERICAN CITY:

It seems a startling statement, but the fact is that under normal conditions the purchaser of "real estate"—whether of unimproved land or of improvements on land, or of both—pays, as owner, no taxes at all. He shifts all taxes.

When he acquired vacant land, the holder of it knew, and the purchaser knew, that the purchaser would have to pay yearly assessments on the land. Accordingly, the purchaser asked and received an abatement from the price, to make up for the liability he must incur by holding the land.

If public improvements continue as expected, and if taxes are less than expected, the purchaser will gain an addition to his speculative profits. If contrariwise, of course the purchaser will lose.

The purchaser of improved property calculates what it will rent for, and expects to collect all charges on the property from his tenants or from a later buyer. On that calculation he bases the price he will pay.

The foregoing facts are, I believe, worth the consideration of THE AMERICAN CITY'S readers in connection with the interesting discussion in your October number, between Professors Griffith and Adams, on "The Crisis in the Property Tax."

BOLTON HALL.

Expensive Public Economy

Governmental expenditures, national, state and local—if carefully planned and honestly administered—are among the most profitable of possible investments. An urgent need is rejection of the false philosophy which sees in mere budget-slashing a cure for our economic ills. Forceful emphasis must be given to the fact that unwise economy costs more than it saves, and that the chief virtue of public saving is to permit wiser and more constructive spending for the common good.

H. S. B.

How Tax-Paying Pays the Tax-Payer

AT the recent annual convention of the League of Wisconsin Municipalities, much favorable comment was given to the story of a Janesville taxpayer, with property assessed at $7,000, as told by Henry Traxler, City Manager of that municipality. From this lively and convincing tale, as published in full in the July-August issue of *The Municipality*, the following excerpts are taken:

Sometimes the best way to bring home certain facts is to tell a story. This is a true one and perhaps all of you can think of similar ones. I have a very good friend who owns his own home, worth perhaps eight or nine thousand dollars. He is married and has three children. His taxes on his home last year amounted to $126. Now we had never discussed the tax situation, but this spring he found it difficult to pay the bill. His income had been reduced and the hardship entailed in meeting his tax obligation made him tax conscious for the first time in his life. Then he began to read the statistics—how so much out of every dollar earned in this country went to pay taxes. Every day he had another lesson brought home to him in the form of tables, charts and statements. All this rather confused him. It was too large to analyze, and, even though the only direct noticeable tax that he paid was the $126 on his home, the problem of taxation became very serious as far as he was concerned.

Harry and Henry Discuss the Problem

One day I picked him up on my way down town and he began to open up. "Henry, you know taxation here will have to be cut to the bone."

"What do you mean—"

"Well," he replied, "take my case. I simply am up against it. Too much money is being paid in taxes. The result is that business is being stifled. Look at the Federal Government. Look at the state. Look at the county. Now, I'm not criticizing the city, because I know you're doing a good job, but even there, you'll have to trim—and trim to the bone. And the schools—My God!—it's a crime that we have to support all the frills that they offer. Let's get back to fundamentals. Let's cut out everything we don't need." . . . .

"All right then," I said. "Let's see how many services you are willing to give up that your taxes pay for. . . . You use the public library, don't you?"

"Every day, almost. We've always got three or four books for the wife and me and four or five for the kids lying around here somewhere. I'll say we use the library."

"Well, let's see. That costs you 1.72 per cent of your $126, or $2.18 a year. Eighteen cents a month for a family of five buys unlimited library service. Should we cut that out?"

"I should say not," he quickly answered.

"Now, let's take the schools. There is where the frills are, you know. The operation of the schools in this town takes 35.10 per cent of the total spent, or $43.20 of your $126. Well, that's $3.68 a month that it costs you to send your three children to school. I don't know—maybe music, drawing and art, domestic arts, science, physical training, manual training, etc., are frills and should be cut out. Perhaps you would save 15 cents a month—I don't know. But I do know that every one of these 'frills' has been placed into the educational system because the advance in education has forced them into it. Our children are going to have plenty of leisure time on their hands. Chances are that they will be part of the 90 per cent that are all through with institutional education after they get through high school. Isn't it a part of our duty as parents and citizens to give to our children the tools with which to live their lives? And if three-fourths of their time is going to be leisure time, are not the tools that allow them to live that leisure time profitably just as important as the tools that provide the means of earning a living? . . . .

"Say," he said, "I'm going to give this education business some investigation. I'm going to get interested in the problem. You say it's costing me $3.68 a month. That's the biggest bargain I know of—and here I sit taking it all for granted without knowing a thing about it."

"Wait, I'm not through yet. See those street lights. That takes 3.71 per cent of your $126, or $4.77 a year. That's 39 cents a month. You've got one on each corner and it costs $20 a year per lamp to keep them there. How would you like to furnish that service yourself? We sweep this street twice a week, that takes .48 per cent of your $126, or 60 cents a year. You're paying 5 cents a month to keep that street clean. Can you afford it? We take your garbage away once a week during the winter and twice a week during the summer. In addition, we move all your tin cans and rubbish away once a week. That service costs you 1.44 per cent of your $126, or $1.81 a year; 15 cents a month for that. Can you throw the stuff in your car and get rid of it for that?"

"Hold on," he interrupted me. "You wanted to know whether I'd get rid of these services at that price. So far I'd say no. Not unless I absolutely had to. Go on."

"All right. Let me throw another batch at you. We keep all the streets, sidewalks and curbs on public property, stop-and-go lights, bridges and street signs in repair. We furnish public drinking fountains, we move the snow off of streets and public sidewalks, we cut the weeds in streets and on public property. We spread oil on streets in bad repair. We make minor improvements. We keep the main sanitary sewer in front of your house operating and in repair. We keep the storm sewer open and operating and we perform all these services for 3.37 per cent of your $126, or $4.23 a year. It costs you 35 cents a month for all that. Maybe it's not worth it, but remember we ploughed out the snow on this street four times last winter. Last week the sanitary sewer in front of this house clogged up and your wife called me at eleven o'clock at night. I had men here in fifteen minutes and they worked until four in the morning in order that you might not suffer any damage or inconvenience. I'm asking you whether it's all worth the money. Do you want to do without it?"

The rest of the story discussed other services such as public recreation (costing tax-payer Harry 25 cents a month); public health and hospital service (25 cents a month); City Manager's, City Clerk's and Treasurer's offices (39 cents a month combined); Police Department (31 cents a month); Fire Department and building inspection service (89 cents a month); and debt service on school buildings, bridges and other public works ($1.41 a month).

Janesville's Tax Levy Analyzed

Mr. Traxler also presented the following analysis of the current year's tax levy in Janesville as to amounts paid by residential taxpayers:

47	per	year	pay	$36 a year or less
31.4	"	"	"	$36-$72 a year
15	"	"	"	$72-$108 a year
4	"	"	"	$108-$144 a year
1.4	"	"	"	$144-$180 a year
.90	"	"	"	$180-$270 a year
.30	"	"	"	over $270 a year
100				

Answering in conclusion the question, "What to do about it," Mr. Traxler said:

"My advice to public officials is that they assemble the figures covering the services rendered by their particular community. Present them to your citizens in attractive form. Use your local press, use pamphlets and put competent speakers in the field. Tell the whole story without exaggeration. Let your own people decide whether they want these services and whether they are worth while. I believe you will find that when your tax-payer obtains a clear, simple explanation of what his tax money buys, he will say, 'How can I live decently in this age and not pay taxes?' "

EDITORIAL NOTE.—The complete article, "Why Pay Taxes?" from which these extracts have been taken, has been reprinted in an effort to offset some of the destructive criticism of public services that is now prevalent. The reprints will be furnished at nominal cost—5c for the first copy, and 2c for each additional copy. Apply to Frederick N. MacMillin, Executive Secretary, League of Wisconsin Municipalities, 114 North Carroll Street, Madison, Wis.

Housing Study Guild Organized

ESTABLISHMENT of a center for the study of technical and social aspects of housing and community planning has been announced by Albert Mayer, of New York, one of the sponsors of the Housing Study Guild, as this important new undertaking will be known. Other active sponsors are Henry Wright, Lewis Mumford and Carol Aronovici. Among those who are helping to direct the Guild's technical studies are Clarence S. Stein, Frederick L. Ackerman, Henry S. Churchill, William Lescase and Catherine K. Bauer. Other architects and workers in related fields will be called upon as the work proceeds. The studies will be carried out largely by a group of co-operating younger men and women.

To quote the announcement in part:

"The work of the Guild is two-fold: to collect and collate existing information; and to formulate and investigate the pressing problems that confront the planners of new housing. The Guild stresses its technical approach—technical in the broadest sense to include economic, social and regional planning aspects. We are emphasizing the objective, analytical approach as opposed to sentimental, traditionalistic attitudes on the subject. . . .

"Especially important will be an authoritative check-up of current shibboleths, such as the yearning for slum-clearance by low-cost housing (regardless of the high cost of most slum land and regardless of the fact that a proper city plan often would not place low-rental housing in the slum location at all); establishing the lowest cost limit to which housing can be brought without subsidy, by good planning with strictly minimal standards which we have thus far largely failed to explore. Our analysis of any of these questions will be specific case studies of particular situations. The technique of these studies will be applicable generally, but the importance of our method and the value of its results will depend on their specific factual nature."

During October the Housing Study Guild carried forward the first two studies in its program. The first is a preliminary analysis of a 30-acre tract in a large eastern city, to determine its availability for industrial housing at low costs which would be acceptable under the program of the PWA Housing Division. This study, which was undertaken at the joint request of the property owners and of the Housing Division, may not be published in its entirety, but the Guild will make available a report on its conclusions from the study, its method of approach to this typical problem, the types of information sources consulted and their effectiveness, etc.

The Guild is also continuing its study looking toward the establishment of standard forms for the reporting and analysis of data on housing projects, together with the formulation of a standard terminology. Before publication this study will be submitted to architects, housing bodies, and others in various sections of the country for criticism. In the meantime those who have made similar or related studies are urged to communicate with the Guild.

Correspondence may be addressed to The Housing Study Guild, Allen A. Twichell, Executive Secretary, 400 Madison Avenue, New York.

Slums and Blighted Areas to Be Studied

A COMPREHENSIVE and intensive study of slums and blighted areas, their causes, prevention, elimination, and conversion for proper housing or other uses, was announced September 18 by the Phelps-Stokes Fund, of New York. While the investigation will be undertaken with particular reference to the conditions and needs of New York City, the experience of other cities, both in America and abroad, will be considered and analyzed for purposes of comparison.

Professor James Ford, of the Department of Sociology at Harvard University, and editor of the twelve volumes of the President's Conference on Home Building and Home Ownership, will be Director of this investigation. George N. Thompson, until recently Assistant Chief of the Division of Building and Housing of the United States Bureau of Standards in Washington, will be Associate Director.

I. N. Phelps Stokes, who was a member of the State Tenement House Commission of 1900, Manager of the Preliminary Investigation Division of the United States Housing Corporation in Washington during the war, and active in the problem of designing model tenements, will cooperate actively in the study, as will also Dr. Thomas Jesse Jones, Educational Director of the Phelps-Stokes Fund, and author of the "Sociology of a New York City Block."

Among the problems to be studied are (1) the relative roles, if any, of the municipal, state and Federal governments, looking to the encouragement of slum elimination and new housing; (2) the various methods of land acquisition and of demolition, including an examination of the constitutional, legal, economic and practical aspects of the problem; (3) the functions and relative advantages of limited dividend housing companies and commercial forms of housing development. Particular emphasis will be placed upon the economic factors in replanning and rehousing, including a study of the most practical units for individual group, block, and neighborhood development, height and area limitations, the width of streets, recreational facilities, stores and other utilities, and methods of reducing costs of financing, construction, depreciation, management, etc.

An office for this investigation will be opened and maintained at 101 Park Avenue, New York, in connection with those of the Conference on Home Building and Home Ownership.

New Jersey Seeks to Answer the Leisure-Time Problem

IN connection with the annual convention of the New Jersey State League of Municipalities, there was held at Asbury Park on October 5 a joint conference of leading recreation executives with representatives of numerous civic and social welfare organizations of the state. It was agreed that the shorter work-day and shorter work-week present a challenge to municipal authorities that must be met by an extensive leisure-time program in which all social agencies and public officials should cooperate. It was also the consensus that during the present emergency special emphasis should be placed on a constructive program of activities for the unemployed and those with reduced incomes.

At the close of the meeting a resolution was passed providing for the appointment of a committee for the purpose of presenting to Governor A. Harry Moore certain definite recommendations. At a subsequent meeting of the committee the Governor was urged to appoint a committee to be known as the "Governor's Committee on the Use of Leisure," this committee to consist of five representative citizens and two recreational executives.

It was further suggested that this committee be instructed to request the local recreational departments employing trained year-round executives to accept the responsibility of initiating the emergency leisure-time effort in their respective cities, and that the mayors in all other communities in the state be requested to form civic committees to solicit the cooperation of all character-building agencies for the purpose of promoting a constructive program of recreational activities.

Early and favorable action by the Governor is anticipated.

Legislative Requirements for Making Federal Funds Available to Municipalities

By E. H. FOLEY, JR.
Assistant General Counsel, Federal Emergency Administration of Public Works

THE greatest obstacle with which the Public Works program has met are the restrictions and limitations placed upon states and municipalities by the provisions of state constitutions and state statutes. Where the restrictions are constitutional, it is of course necessary to go through the cumbersome process of constitutional amendment, a process which in most instances is equivalent to a denial of aid. In such situations we see once more the inevitable result that follows when fallible minds try to formulate an infallible mold for the future. And in such a case the Public Works Administration is helpless because the much discussed Section 203 (d) does not give the President blanket power to override state constitutions, nor does it authorize the Public Works Administration to make loans on inadequate security or to make any grants in excess of 30 per cent of the cost of the labor and material on a given project.

Where, however, restrictions are purely statutory, a forceful executive and legislature willing to cooperate can make the benefits of the Act available to their constituents. There are several means available in such a case: First, it is desirable, where such a law does not already exist, to pass a revenue bond act. Under a revenue bond act the security in back of the bonds is the revenue from the particular project involved, which is thus made to pay its own way without any additional burden to the taxpayer.

Another method is to authorize cities to borrow from the Federal Government without regard to any statutory debt limits and to dispense with the necessity of referendum elections, notice of hearings, and other time-devouring impediments, such as the requirement of public sale. The so-called Mandelbaum Bill in New York, now constituting Chapter 782 of the Laws of 1933, is an example of this type of legislation. This bill was enacted into law at the recent extraordinary session of the New York Legislature. In certain respects this law is ambiguous and ineffective and should be used as a model with care.

A third method is to make the raising of the debt limit dependent on review by a state commission set up for the purpose. Such a law would provide that whenever the state commission is convinced of the necessity of a particular project, it may authorize the municipality to incur indebtedness in excess of its debt limit, with the further proviso that the resultant indebtedness to the United States Government is not to be included in computing the statutory debt. Such provisions are to be found in the recent Rhode Island Act passed at the June, 1933, session constituting Chapter 2078 of the Public Laws of 1933. While certain other features of this law, such as the review by the state commission of all public works projects, are undesirable because of the delay incident to a multiple review, there is much to be said for not allowing municipalities to borrow in excess of their debt limits except where a state commission has first approved the loan.

A fourth method, and probably the best, is exemplified by Chapter 26 of the Acts passed by the extra session of the General Assembly of Virginia in 1933. This law is in effect for a limited period of time and deals specifically with loans and grants by the Federal Emergency Administrator of Public Works to the counties, cities and towns of Virginia. It supersedes the provisions of all inconsistent laws, general or special, including charters, and confers powers which are in addition to the powers conferred in other laws. Instead of being simply a revenue bond act or removing the specific restrictions, or raising the debt limit, and going no further, the Virginia Act accomplishes all these results and at the same time sweeps away all statutory limitations on the issuance of bonds contained in other statutes of the state. It is in effect a general bond act of limited application complete in itself both as to powers and as to procedure.

The Virginia Act, however, should not be used as a model except with caution. Constitutional limitations in each state differ in many respects, and this should be carefully checked and considered before any legislation is passed. The Legal Division of the Federal Emergency Administration of Public Works is always ready and willing to cooperate in the drafting of any necessary legislation.

A perfect system of laws would permit municipalities to borrow heavily in bad times when the needs are greater, and would restrict them in boom times when extravagance and unwise spending are likely to result. The most striking attribute of the perfect system, however, would be its flexibility. At present most systems are imperfect because they constitute strait-jackets—because they were designed in days when debt was considered cause for reproach, and when the functions of wise spending were not appreciated.

The main object of any legislation should be to make more expeditious the obtaining of loans and grants from the Administration and the removal of the numerous restrictions, ambiguities and outright contradictions which at present seriously hamper municipalities when they come to the Federal Emergency Administration of Public Works for a loan or a grant.

Roadside Improvement Movement Launched by Public Works Administration

PROVISIONS designed for protection of the natural landscape and eventual screening of highways by the planting of trees and shrubs are contained in the following resolution adopted by the Special Board for Public Works and announced October 24 by the Federal Emergency Administrator of Public Works.

"*Resolved*, that all loans or grants made after January 1, 1934, to finance projects for the construction, repair or improvement of public highways shall contain such provisions as are necessary to insure that,

"1. Such trees and shrubs be planted along the borders of the highway and maintained as will in the course of time bring about screening of the highway to the extent planting and screening are practicable and feasible. The Chief of the United States Bureau of Public Roads, Department of Agriculture, shall determine the scope and apply the means of effectuating this provision.

"2. So far as practicable and feasible, as determined by said Chief, the width of such highways shall not be less than 150 feet and footpaths be provided."

In a statement accompanying the foregoing resolution, Public Works Administrator Harold L. Ickes said:

"Roadside improvements have many practical advantages aside from beautification. The planting of trees along roads provides shade and coolness in summer and protection from wind and weather in winter. Also involved are the benefits of reforestation and the prevention of soil erosion. It has been estimated that an extra 20 feet of right-of-way along all Federal highways would result in 5 acres of reforestation for every mile planted.

"Construction of footpaths and bridlepaths bordering highways would be in the interest of pedestrians and equestrians, who complain that in this motor age their rights often have been lost sight of.

"Wider rights-of-way and highway screening also would have the effect of removing, or at least restricting, signboards and other wayside eyesores which have destroyed much of the natural beauty of the countryside."

Recent News from the Public Works Administration

(See also pages 5, 45, 49, 64, 67, 68, 69 of this issue)

How PWA Is Speeding Action on Local Public Works Allotments

"THE country is impatient for the expenditure of money. The Government is on a nervous tension trying to get the money to the country to be spent. At the same time there must be a careful check. There must be a particular knowledge of each project to know that each city or village or county has securities or has bonds or other methods of financing, whereby it can put itself into the position of protecting the Federal Government loan."

Pointing out this necessary handicap to the speedy allocation of Federal funds for local public works, Colonel Henry M. Waite, Deputy Federal Administrator of Public Works, speaking before the American Institute of Steel Construction, at Chicago, on October 20, explained also the progress already made in "the setting up of a tremendous piece of human machinery all through the United States. It was necessary," said Colonel Waite, "to build up an organization, from Washington, in each state composed of a board of three advisers and an engineer, with his assistants, his examiners, his stenographers, his accountants and his clerks, to get together the projects from the various branches of government in his state. These projects are examined, gotten into proper condition and forwarded to Washington with the approval or disapproval of the state engineer and the board of advisers. In Washington it takes an organization, which today is nearly 1,000 people, composed of lawyers, financiers, engineers and accountants to take care of the detail and go over these projects after they reach Washington."

PWA Helps Finance Emergency Relief Projects

AN allotment of $2,500,000 of the Public Works Administration funds to be used in conjunction with the Federal Emergency Relief Administration funds in financing part of the cost of work projects was announced on October 25. The allotment is subject to the submission to the Public Works Administration of specific projects on which the Public Works money will be expended.

It was represented to PWA that in many instances work relief projects could be started immediately with labor wages paid by the Relief Administration in lieu of direct relief to persons who are unemployed. The Relief Administration, however, is without authority to pay for the supervision of such work and the cost of materials and equipment required. Public Works funds are available for such purposes and may be withdrawn from this allotment.

Municipal Public Utilities Favored by PWA

THAT municipalities will have preference over privately owned utilities in loans from the PWA fund for the building of power plants and lighting systems, was made plain by Secretary Ickes on October 31 in a letter from the Public Works Administration to Hugh Miller, State Engineer for Missouri. This letter amounted to instruction to Missouri officials to apply for a loan for desirable projects without delaying applications unduly because of demands for hearings on the protests of private interests. In his letter Secretary Ickes said:

"Undoubtedly, hearings ought to be held, but it seems to me that it could be taken for granted that power interests will oppose any municipal electric light project.

"My view is that hearings ought to be granted for the purpose of establishing whether the municipality itself desires a project. If a project is generally desirable, engineeringly practicable and legally sound, then it ought to be forwarded with approval to Washington, notwithstanding certain interested opposition."

Maximum Prompt Employment

A POLICY of keeping PWA funds from being tied up so that they are not available for furnishing employment within a year was announced last month. It was explained, however, that this would not prevent consideration of projects which would require more than a year to complete. Instead of permitting money which might be working to give employment within a year to remain impounded for use in the distant future, this money will be used on projects which will furnish employment within a much shorter period. Secretary Ickes made clear that this policy does not block any projects for which allotments had already been made.

PWA Appoints Three Additional State Engineers

APPOINTMENT of three State Engineers for the Public Works Administration was announced last month. These are in addition to the appointments listed in THE AMERICAN CITY for September (page 5) and in the 1933 Municipal Index (page 178).

The new appointees are Robert A. Allen for Nevada, W. F. Cochrane for South Dakota, and George M. Neel for New Mexico. Mr. Allen formerly was State Engineer for Nevada and City Engineer of Carson City. He was a member of the Public Service and Railroad Commission of Nevada and as an engineer has specialized in flood control and underground water. Mr. Cochrane, a graduate of Iowa State College, formerly was City Engineer of Watertown, S. Dak. He is past president of the South Dakota Society of Engineers and Architects. Mr. Neel, a graduate of the Engineering and Agricultural College of Colorado, formerly was State Engineer of New Mexico. He has specialized in irrigation. He was engaged in private practice in Santa Fe.

Until now the PWA State Engineer for Utah served Nevada, the engineer for North Dakota served South Dakota, and the engineer for Arizona also acted for New Mexico.

The Municipal Bond Market

Recent sales of new issues, from October numbers of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate %	Term (Years)	Basis %
$900,000	New Hampshire, Bridge	3.5	10 5/6-13 2/3 (Opt.-Avg.)	3.01
700,000	Cambridge, Mass., Relief	3.25	1-5 (Ser.)	3.16
310,000	Springfield, Mass., Sewer	3.5	14 5/6 (Avg.)	3.23
100,000	Norristown, Pa., Highway	3.5	1-20 (Ser.)	3.45
160,000	Attleboro, Mass., Funding	3.5	1-5 (Ser.)	3.48
350,000	Upper Darby Township, Pa., Township	3.5	5-10 (Opt.)	3.5
300,000	Pittsburgh, Pa., Relief	4.25	1-20 (Ser.)	3.80
1,700,000	St. Louis, Mo., Improvements	4	12¼	3.91
350,000	Warren Co., N. Y., Highway	4	12¼ (Avg.)	3.93
3,800,000	Boston, Mass., Welfare	4.25	1-5 (Ser.)	3.96
150,000	Albert Lea, Minn., Improvements	4	2-16 (Ser.)	4
100,000	Manchester, N. H., Improvements	4.5	5 1/6 (Avg.)	4.00
275,000	Elmira, N. Y., Improvements and Welfare	4.1	4 2/3 (Avg.)	4.08
1,060,000	Syracuse, N. Y., Improvements	4.2	1-10 (Ser.)	4.15
150,000	Quincy, Mass., Improvements	4.25	6½ (Avg.)	4.17
200,000	Des Moines, Iowa, Sewer	4.25	12 (Avg.)	4.21
500,000	Kansas City, Mo., Improvements	4.25	24 (Avg.)	4.22
640,000	St. Paul, Minn., Improvements	4.5	15 2/3 (Avg.)	4.33
120,000	Loveland, Colo., Water Refund	4.5	2-9 (Ser.)	4.40
240,000	Milwaukee Co., Wis., Sewerage	4.5	14 1/6	4.79
992,000	Pasadena, Calif., Water	5	10-40 (Ser.)	4.97
2,500,000	Louisiana, Highway	5	1-5 (Opt.-Avg.)	5
100,000	Rockville Centre, N. Y., Lighting	5.5	2-11 (Ser.)	5.47
500,000	Erie, Pa., City	5.5	14 1/6 (Avg.)	5.5
305,000	Harrison, N. Y., Highway, Sewer	6	12 2/3 (Avg.)	6.

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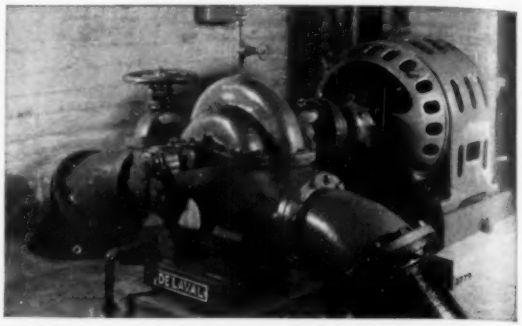

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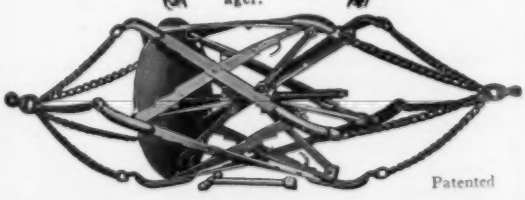

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ZONING and PLANNING NOTES

From Data collected by the Zoning Committee of New York (233 Broadway)

Private Restrictions—Increase of Traffic

CONNECTICUT.—*Bickell v. Moraio* (Supreme Court, July 18, 1933) 167 Atl. 722.—The plaintiffs and the defendants are owners in a real estate development known as Breezemont Park. The lots are subject to mutual covenants excluding business from it. The development is situated on the Boston Post Road. When the development was laid out, the Post Road carried the then existing traffic. This traffic has since greatly increased. The character of the development, however, has not changed. Business has to some extent located outside the development, on the Post Road.

The plaintiffs claim that the increase of traffic, and the location, nearby, of business, constitutes such a change as to entitle them to a judgment allowing them to change the use of their lots to business. This claim the Court refused to grant. It is only where there is a radical change in conditions, completely defeating the purposes of the convenants, so that their enforcement would not afford the protection originally contemplated, that they will be held to be unenforceable. Business locating nearby, but not in the area, and the increase of traffic, is no such change.

The situation is not comparable to that in *Trustees of Columbia College v. Thatcher*, 87 N. Y. 311, in which, after the purchase of the property an elevated railroad was built in the street with a station whose platform occupied half the width of the sidewalk in front of the property, from which persons could look directly into the windows; and this, with the noise of the trains, made privacy and quiet impossible. The relief, therefore, which was granted in that case, cannot be given in this one.

Zoning Ordinance — Effect on Value in Condemnation Proceedings—Statute of Limitations

NEW YORK.—*MacEwen v. City of New Rochelle and County of Westchester*, Supreme Court, Westchester County, September 30, 1933.—The plaintiff's land is situated in a zoning district restricted to single families and so developed. This land has been condemned by Westchester County for park purposes. Its value, if the provision of the zoning ordinance confining the use of land within the district to one-family residences is valid, is $30,000, and the award, based upon the validity of that ordinance, is for that amount. The value of the land condemned, if the zoning ordinance is invalid, and the land can be used for apartments, is $53,000, or more. The plaintiff therefore claims that the zoning ordinance is invalid, and that she should receive the larger amount for her land.

The defendants contend that the plaintiff has waived her right to question the validity of the zoning ordinance because she has waited for several years before suing to test it. This contention the Court overrules. The statute of limitations is by its terms no bar to this action, and there are no facts establishing an estoppel preventing the plaintiff from claiming at this time that the zoning statute is unconstitutional. Viewing the zoning ordinance for the moment as invalid, until its repeal or a judicial declaration of its invalidity, it is a continuing invasion of plaintiff's property rights akin to a continuing trespass—a situation in which a new cause of action arises in the plaintiff's favor against the city each day. The Court holds, however, that the zoning ordinance is constitutional and valid, and the plaintiff not entitled to more than the $30,000 awarded her.

EDITOR'S NOTE.—On the question, involved in this case, of the effect of zoning ordinances on values, in view of the possibility of their repeal, see the abstract of the California case of *City of Beverly Hills v. Auger*, in our September, 1933, Notes.

Zoning Ordinance—Reasonableness

NEW JERSEY.—*Guaranty Construction Co. v. Town of Bloomfield* (Supreme Court, July 21, 1933) 168 Atl. 34.—Amendment to zoning ordinance adding one isolated lot surrounded by a residential zone to a business district half a mile away is void as violating the statute requiring zoning ordinances to create districts suited to the purposes of the act.

EDITOR'S NOTE.—The act in question merely amplifies the requirement, fundamental in police power regulation, that the zoning shall be reasonably related to the public health, safety, convenience and public welfare. In some cases small isolated business districts may be proper, but this district, in the opinion of the Court, was not.

Zoning Ordinance — Amendment —Publication

NEW YORK.—*Matter of Presser v. Ferris, Town Clerk, and Bennett, Supervisor of Town of Eastchester*, Supreme Court, Westchester County, reported in *Westchester Law Journal*, September 26, 1933.—The petitioner Presser seeks a mandamus directing the Town Clerk of Eastchester to issue to him a license to conduct a restaurant upon premises owned by him. An amendment of the zoning ordinance zoned Presser's property as "Residence E," in which restaurants are not allowed. The amendment was published, after its adoption, only once, and was not posted at all. The question was raised whether the law requiring publication twice, and posting, which clearly applies to the ordinance itself, is also applicable to an amendment.

The Court held that these requirements apply also to amendments and that the amendment, not having been published and posted as required by law, was not in force. Since, therefore, there was no zoning provision to prevent it, the Court ordered the Town Clerk to issue the license to Presser.

EDITOR'S NOTE.—Like the Louisiana case of *State ex rel. Holcombe v. City of Lake Charles*, abstracted in our Notes for February, 1933, this case is an illustration of the distinction between directory and mandatory provisions in zoning as in other laws and ordinances; the provision in the present case being mandatory. The distinction is explained in a note to the Holcombe case.

Zoning Ordinance—Skating Rink

WASHINGTON.—*Manos v. City of Seattle* (Supreme Court, July 25, 1933), 24 Pac. 2d, 91.—Manos is the owner of premises in a block entirely used for amusement purposes. In 1923 the zoning ordinance zoned this block for business. This ordinance, applicable to this block, prohibited theaters and dance halls within 500 feet of parks, schools and playgrounds in business districts. In 1925 an ordinance was passed prohibiting skating rinks within that distance, and therefore within that block. Manos, subsequent to 1925, applied for a license to conduct a skating rink.

The Court holds that the ordinance of 1925, in so far as it is a licensing provision (as it is in parts), is valid, and Manos must pay his license fee; but as a zoning ordinance absolutely prohibiting the skating rink, it is unreasonable and void.

The Court makes some interesting observations with regard to various types of amusement activities. In its opinion, Manos was conducting his rink in an orderly manner, so as not to create a nuisance in fact, and such a rink is not a nuisance per se (by its very nature). Frequenters of skating rinks are at least benefited by the exercise necessary to human development and health, while no such benefit is derived from the neighboring merry-go-round or Ferris wheel; they, however, involve nothing inherently evil, and, unlike places for the sale of intoxicating liquors, cannot be entirely prohibited on all private property; nor, of course, can a skating rink be so prohibited.

EDITOR'S NOTE.—The provisions forbidding a given use in a particular district within a given distance of another use, may be criticized on the ground that they are not in accordance with the requirement of zoning laws that all regulations for each class of buildings throughout the district shall be uniform. Such provisions, however, are to be found in many zoning ordinances, especially on the borders of districts as an aid in the transition from one district to another. For a discussion of transition zoning in all its forms, see "Transition Zoning," by Arthur C. Comey, Harvard University Press, 1933, being Harvard City Planning Studies No. V; reviewed in the June, 1933, number of this magazine.

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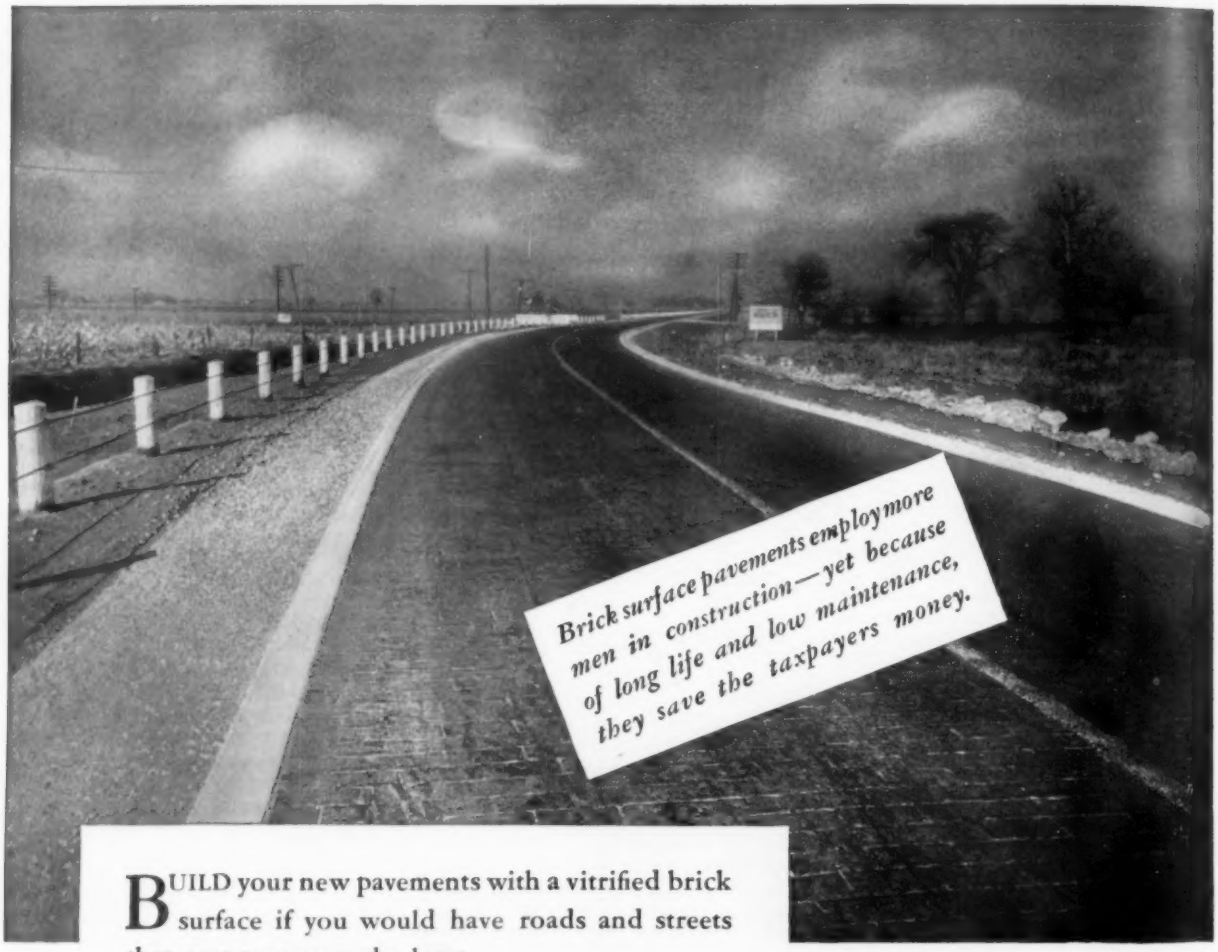
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THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, Attorney at Law

Accidents

Long-continued use of sidewalk across parkway by public held to charge city with duty of repair, regardless of who constructed it (Kansas City, Mo., Court of Appeals: *Edmonston v. Kansas City*, 57 S. W. 2d, 690).

City held not liable for death on private premises due to fall of wall standing after fire, although city did not close abutting sidewalk and street (Georgia Court of Appeals: *Head v. City Council of Augusta*, 169 S. E. 48).

City held not liable for injury to pedestrian who tripped on 3-inch ledge in cement sidewalk (Louisiana Court of Appeal: *Suthon v. City of Houma*, 146 So. 515).

City held not liable for death of bather in municipal pond on nuisance theory (Wisconsin Supreme Court: *Virovatz v. City of Cudahy*, 247 N. W. 341).

City held not neglectful in failing to discover slimy condition of sidewalk in front of fish market before pedestrian slipped (Connecticut Supreme Court of Errors: *Jainchill v. Schwartz*, 165 Atl. 689).

City held powerless to shift to abutter statutory duty to maintain streets and sidewalks in proper condition, although abutter is liable for creating dangerous condition (Connecticut Supreme Court of Errors: *Stevens v. Neligon*, 164 Atl. 661).

Advertising Regulation

Truck carrying trade union picketing placards held covered by ordinance against advertising trucks, etc., in streets (New York Court of Special Sessions: *People v. Hopkins*, 263 N. Y. S. 290).

Bonds

Bondholders held entitled to temporary injunction against acceptance of bonds and interest coupons in payment of taxes under statute claimed to be unconstitutional (United States District Court, District of Florida: *Crummer v. City of Fort Pierce*, 2 Fed. Supp. 737).

Mere illegality of bonds held not to entitle contract purchaser to return of deposit made subject to approval of bonds by attorneys (Texas Court of Civil Appeals: *Ulen Securities Co. v. City of El Paso*, 59 S. W. 2d, 198).

Bribery

Clerk of municipal department held guilty of bribery in receiving money to prevent discharge of employee, although clerk did not have direct power to discharge (Ohio Court of Appeals, Cuyahoga County: *Forte v. State*, 184 N. E. 854).

Business Regulations

Ordinance forbidding sale of ice manufactured outside city unless made of distilled water upheld (Texas Commission of Appeals: *City of El Paso v. Jackson*, 59 S. W. 2d, 822, reversing 40 S. W. 2d, 845).

Ordinance forbidding business solicitation in front of stores, etc., upheld (New York City of Special Sessions, Appellate Part; *People v. Phillips*, 263 N. Y. S. 158).

Ordinance closing butcher shops on Sunday held not invalid because licensed poultry markets are excepted (New Jersey Supreme Court: *Mazzarelli v. City of Elizabeth*, 164 Atl. 898).

Civil Service

Janitor held not protected by civil service act, being unskilled employee (Iowa Supreme Court: *Ash v. Board of Civil Service Commissioners of Des Moines*, 247 N. W. 264).

Contracts

Contract to pay for light and water equipment out of plant revenues held not covered by constitutional debt limit (Indiana Supreme Court: *Underwood v. Fairbanks, Morse & Co.*, 185 N. E. 118).

Contract for engineering service on street improvement held void where city had regular engineer (California District Court of Appeal: *Brooks v. City of Gilroy*, 21 Pac. 2d, 144).

Contract to sell supplies to city held voidable if commissioner was interested through selling to the dealer contracting with city, etc. (Texas Commission of Appeals: *City of Edinburg v. Ellis*, 59 S. W. 2d, 99).

Councilman's Eligibility

Candidate for council held ineligible because of change of residence, not coming within rule that residents of gerrymandered territory may count period of residence in old district in qualifying in new district (California Supreme Court: *Lindsey v. Dominguez*, 20 Pac. 2d, 327).

Dog Races

Injunction held to lie against dog races as constituting lottery and nuisance (Oklahoma Supreme Court: *State v. Wokan Amusement Co.*, 19 Pac. 2d, 967).

Drainage

City held liable for flooding of land due to highway culvert obstructing natural flow of water (Massachusetts Supreme Judicial Court: *Belkus v. City of Brockton*, 184 N. E. 812).

Payment for drainage system through special assessments did not exonerate city from liability for damage caused by negligent maintenance (Indiana Supreme Court: *City of Logansport v. Cotner*, 185 N. E. 634).

Elections

Plurality elects in absence of contrary charter provision (Tennessee Supreme Court: *State v. Carr*, 59 S. W. 2d, 509).

Employees' Wages

Prevailing rate of wage statute held applicable to municipal employees, as well as to municipal contractors' employees (New York City Municipal Court: *Manning v. City of New York*, 263 N. Y. S. 790).

Gas Rates

Company producing and transporting gas held entitled to approximately 8 per cent on present values as adequate return (United States District Court, District of Kansas: *Wichita Gas Co. v. Public Service Commission*, 2 Fed. Supp. 792).

Purchases

Village purchase of lighting equipment under conditional sales contract providing for payment from plant revenues held violative of statutes relating to budgets, etc. (New York Supreme Court, Appellate Division: *Utica Gas & Electric Co. v. Merry*, 263 N. Y. S. 277).

Taxation

Power to levy taxes to pay prior debts held not to permit increase of principal by refunding below par (Michigan Supreme Court: *Wilcox v. Board of Commissioners of Sinking Fund of Detroit*, 247 N. W. 923).

Imposition by city of street tax on motor carriers held void as conflicting with statutory regulation (Georgia Supreme Court: *City of Albany v. Ader*, 168 S. E. 1).

Taxpayer held not entitled to enjoin tax assessment as being excessive, remedy being against tax when levied (Wisconsin Supreme Court: *Schlitz Realty Co. v. City of Milwaukee*, 247 N. W. 459).

Traffic Regulations

Shreveport ordinance fixing 16 as minimum age of automobile drivers held void as conflicting with statute fixing age at 14 (Louisiana Court of Appeal: *Loewenberg v. Fidelity Union Casualty Co.*, 147 So. 81).

Prohibition against pedestrians crossing roadways in central traffic district of San Francisco, except on crosswalk, upheld (California Supreme Court: *Hopkins v. Galland Mercantile Laundry Co.*, 21 Pac. 2d, 553).

Water Rates

Attempted creation of lien for water rates by ordinance held invalid (Illinois Supreme Court: *Rockford Savings & Loan Assn. v. City of Rockford*, 185 N. E. 623).

Workmen's Compensation

Municipalities held validly covered by Workmen's Compensation statute (Georgia Supreme Court: *City of Atlanta v. Pickens*, 169 S. E. 99).

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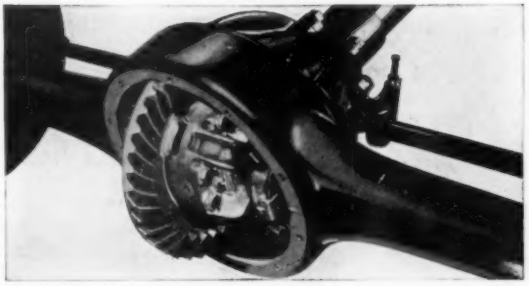

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Liquor Control

Toward Liquor Control.—By Raymond B. Fosdick and Albert S. Scott; with a Foreword by John D. Rockefeller, Jr. Harper & Brothers, New York. 1933. *XVI* + 220 *pp.* $2.00 *from* THE AMERICAN CITY.

For special comment on this volume see pages 35 and 36 of this issue of THE AMERICAN CITY. The material is presented in the book under the following chapter heads: The Background of the Problem; The Legacy of Prohibition; Light Wines and Beers vs. Spirits; Regulation by License; The Authority Plan; The Authority Plan with Adaptations; Taxation; Education; Toward Control. The Appendices include: American Laws and Constitutional Provisions—Wilson Original Packages Act, Webb-Kenyon Act, Reed Amendment, Eighteenth Amendment, Summary of the Volstead Act, Summary of the Jones Law, Summary of Act Legalizing 3.2 per cent Beer, Twenty-first Amendment; How the Canadian Provinces Handle Alcoholic Beverages; How Certain European Countries Handle Alcoholic Beverages; Explanatory Notes and Definitions; Percentages of Absolute Alcohol in Various Beverages; Selected Bibliography.

Public Works

The work of private contractors on city construction projects in Philadelphia was the subject of an investigation by the Bureau of Municipal Research of that city in 1930 and 1931, and a mimeographed report of 32 pages was issued in October, 1933, covering the following elements of the situation: The Inspector's Task; Appointment of Inspectors; Inspectors' Working Conditions; and Quality of the Work; with a Summary of Conclusions and Recommendations. The report was prepared by Philip A. Beatty, then engineer on the Bureau's staff. Definite measures for the improvement of the city's inspection work are set forth, involving better selection and training and the development of high standards. William C. Beyer is the Director of the Bureau. (Apply to the Bureau.)

Municipal Reports

"A Plan for a Standard Form of Municipal Reports, to Be Published Annually by Towns in the Commonwealth" is a 31-page pamphlet prepared by Harvey Chase, C.P.A., for a special committee of the National Economy League, Massachusetts State Branch, Inc., for presentation to the Recess Commission on Public Expenditures of the General Court of Massachusetts. October, 1933. A clear and interesting presentation of the principles of preparing intelligible and prompt reports covering the municipal transactions of a year, to be sent to voters before the annual town meeting; arranged in such standardized form that each subdivision of the accounts will be comparable with similar subdivisions in the reports of other towns—the same words meaning the same things. (Apply to the author, 49 Federal St., Boston, Mass.)

Water Supply and Sewerage

The Maryland-Delaware Water and Sewerage Association met for its seventh annual conference last May, in Baltimore. The Proceedings have been published in a pamphlet of 129 pp. available from the office of the Secretary of the Association, 2411 N. Charles St., Baltimore, Md. It contains ten papers, with discussions, on various important elements of the problems of water supply, stream control and sewage and garbage disposal.

Culverts

The results of an investigation conducted at Ames, Iowa, by the Iowa Engineering Experiment Station in cooperation with the United States Bureau of Public Roads, is presented in Bulletin 112 of the Station (February 8, 1933) in a 100-page pamphlet, "The Supporting Strength of Rigid Pipe Culverts," by M. G. Spangler, Associate Structural Engineer. Charts, graphs, tables. (Apply to the Station, Iowa State College, Ames, Iowa.)

Garden Cities and Town Planning

Sir Ebenezer Howard and the Town Planning Movement.—By Dugald Macfadyen. Manchester (England) University Press. 1933. *X* + 166 *pages. Numerous illustrations.* 10/6 *from the publishers;* $3 *from* THE AMERICAN CITY.

In this fascinating book there are, as the author explains in his Foreword, two *motifs*. "One is to trace the fortunes of a thoroughly practical and common-sense ideal which had to make its way to recognition, and succeeded in doing so. It is the story of one of the most vital, hopeful stimulating and successful social movements in the history of England during the last thirty years. The other *motif* is supplied by the development of a personality known to hundreds of people and leaving on all of them a memorable impression."

A stimulating biography of Sir Ebenezer Howard is followed by chapters on the genesis of the garden cities movement, on the planning and development of Letchworth, Welwyn Garden City and Wythenshawe, and on the spread of the garden city idea in other countries. The chapters on The Land Questions at Letchworth are of special importance at a time when problems of land ownership, utilization and taxation in their relationship to city and regional planning are receiving more careful study in America and elsewhere than ever before.

Fire Prevention

An address by George S. Lawler, presented at the annual meeting of the National Fire Protection Association, held in Milwaukee, Wis., May 29-June 1, 1933, has been reprinted from the *Quarterly* of the Association, July, 1933, under the title, "The Oil Hazard in Modern Power Houses." 14 pp. Illustrated. 10c. The author is Chief Electrical Engineer, Inspection Department, Associated Factory Mutual Fire Insurance Companies. The higher steam pressures and temperatures now the practice in power houses, in connection with the lubrication of steam turbines and their generators, have created a serious fire hazard. The experience of six fires is given, and the conditions are analyzed, resulting in recommendations as to the principal precautions to be taken and protection needed to eliminate, or control, this hazard. (Apply to the Association, 60 Batterymarch St., Boston, Mass.)

"The Use of Automatic Sprinkler Systems by Fire Departments" is the report of the Committee on Field Practice of the N. F. P. A., and has been reprinted from the Proceedings of the last annual meeting of the Association. 12 pp. Diagrams. This is an advisory pamphlet showing how fire departments can make more effective use of automatic sprinklers, and making an appeal for a more efficient and economical use of sprinkler systems, particularly in connection with the use of fire department pumpers. 10c. (Apply to the Association, as above.)

Municipal Finance

An analysis of the current expenditures of New York State cities, excepting New York City, Buffalo and Rochester, for the last 14 years has been made by William Parr Capes, Executive Secretary of the New York State Conference of Mayors and Other Municipal Officials, and Director of the Bureau of Municipal Information. Its title is "City Cost Trends" (Publication No. 23 of the Bureau.) 1933. 37 pp. Graphs, tables. $1.00. The figures include only the ordinary current expenses of the municipalities. (Apply to the Bureau, Albany, N. Y.)

City Manager Plan

In the October 13, 1933, issue of the *Portland City Club Bulletin*, of Portland, Ore., there is a report by the Government Organization and Public Finance Section of the City Club on a "City Manager Plan for Portland." 12 pp. A review of the history of the movement and the principles of its operation, with explanation of experiences in specific cities, and of its application to the situation in Portland, together with the Hare system of proportional representation. (Apply to the Portland City Club, Portland, Ore.)

Finance

Current Problems in Public Finance.—Commerce Clearing House, Inc. Chicago, 1933. 391 *pp.* $3.25.

A five-day Conference on Taxation, Readjustment of Governmental Expenditures, and Problems of Public Credit was conducted by the School of Law and the School of Commerce, Accounts and Finance of New York University in December, 1932. The lectures of the fifty speakers participating in the conference appear in this volume. The subjects discussed are of timely importance. Academic, editorial and legislative speakers, as well as business men, engineers and social workers, present their various viewpoints. The book gives an interesting cross-sectional view of current ideas on problems of public finance. Much valuable information is contained in the papers.

Motor Equipment

"The Administration of Municipal Motor Equipment in New York State," by Alwyn A. Greeley, is Publication No. 24 of the Bureau of Training and Research, New York State Conference of Mayors and Other Municipal Officials, Albany, N. Y. 1933. 63 pp. $1.00. This study, made under the joint auspices of the Bureaus of Training and Research, and Municipal Information, and the School of Citizenship and Public Affairs of Syracuse University, covers the following divisions: Agencies of Control; Methods of Control; Method of Control (accounting); Purchasing; Central Garage and Transportation Bureau. The Appendix contains many forms used in the control of motor vehicles. (Apply to the Bureau of Training and Research.)

Public Utilities

"The Utility Problem in St. Paul" is a pocket-size pamphlet of 26 pages, prepared by Burns & McDonnell Engineering Co., of Kansas City, Mo., and Cincinnati, Ohio, for the Public Utilities Committee of the City Council of St. Paul, Minn., October, 1933. It is a summarized report of the rates, revenues, excess earnings, franchises, valuation and appraisal of the electric, gas and steam heating properties for which franchises have expired; also upon the cost of construction and operation of municipally owned and operated utilities. (Apply to Clyde R. May, Commissioner of Utilities, St. Paul, Minn.)

Government and Administration

The Fifth Institute of Public Affairs was held at Montpelier, Vt., January 11-13, 1933, under the auspices of the Bureau of Municipal Affairs of Norwich University. The interesting Proceedings have appeared in a pamphlet of 58 pages and include papers and discussions on: A Plan for the Simplification of Government in Vermont; The Essentials of a Scientific Budget System for Small Communities; Cooperation Between State and Municipality in the Making of Public Improvements; Economics in Local Government through Cooperation; Making Municipal Reports More Interesting; The Objectives of the Vermont Commission on Country Life. (Apply to K. R. B. Flint, Director, Bureau of Municipal Affairs, Norwich University, Northfield, Vt.)

City Planning

The Planning Board of Teaneck, N. J., presents "The Teaneck Plan," a most attractive illustrated booklet of 43 pages, with a folding Master Plan for the township and a folding plan for the complete development of the civic center. The consulting engineers for the Plan are the Technical Advisory Corporation, 15 Park Row, New York. The program looks forward twenty years by periods of five years, and covers the probable needs of the township for new streets and extensions, parks, playgrounds, public building sites, bridges, etc., to be realized gradually as funds are provided. The report makes a direct and friendly appeal, reasonable and authoritative. The photographs and drawings add greatly to its interest. (Apply to the Planning Board, Teaneck, N. J.)

Barrett Tarvia

GOOD ROADS at LOW COST

Constructing Glenside Avenue, Watchung Reservation, near Summit, New Jersey. Tarvia-lithic.

The completed road—easy-riding, skid-safe, all-weather.

Both photographs were taken in December, 1932.

GLENSIDE AVENUE, near Summit, New Jersey, is typical of what can be done with Tarvia or Tarvia-lithic and Barrett service—even under adverse conditions.

Tarvia-lithic construction was begun in December, 1932, and carried on through the winter. Inexperienced labor was used, drawn from the ranks of the unemployed, and the result was a completely satisfactory, easy-riding, skid-safe, all-weather pavement.

If you have urgent construction, maintenance or repair work to do, it may not be necessary to wait until spring, even though the road season is "officially closed." Tarvia and Tarvia-lithic can be successfully applied in almost any weather except actual snow or rain.

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CONVENTIONS—WHEN AND WHERE

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

NOVEMBER 6-10.—MINERAL WELL, TEXAS. (200)
Texas Public Health Association. Annual convention and school. Acting Secretary-Treasurer, Mrs. M. Pierson, State Board of Health, Austin, Texas.

NOVEMBER 8.—ATLANTIC CITY, N. J.
Governmental Research Association. Annual meeting. Secretary-Treasurer, Robert M. Paige, Assistant Director, Public Administration Clearing House, Drexel Avenue at 58th Street, Chicago, Ill.

NOVEMBER 9.—BOSTON, MASS.
Massachusetts Highway Association. Quarterly meeting. Secretary, John M. McCarthy, 318 State House, Boston, Mass.

NOVEMBER 9-11.—ATLANTIC CITY, N. J.
National Association of Civic Secretaries. Annual convention. Secretary, Miss H. Marie Dermitt, Hotel William Penn, Pittsburgh, Pa.

NOVEMBER 9-11.—ATLANTIC CITY, N. J.
National Municipal League. Annual convention. Acting Secretary, Howard P. Jones, 309 East 34th Street, New York.

NOVEMBER 9-11.—ATLANTIC CITY, N. J.
Proportional Representation League. Annual meeting. Executive Secretary, George H. Hallett, Jr., 311 South Juniper Street, Philadelphia, Pa.

NOVEMBER 13-15.—STATESVILLE, N. C.
American Water Works Association — North Carolina Section. Annual meeting with the North Carolina Sewage Works Association. Secretary, H. G. Baity, Department of Sanitary and Municipal Engineering, University of North Carolina, Chapel Hill, N. C.

NOVEMBER 16-18.—AMES, IOWA. (100)
Iowa Sewage Treatment Conference, meeting with the Iowa Wastes and Disposal Association. Secretary-Treasurer, Lindon J. Murphy, Municipal Engineer, Iowa State College, Ames, Iowa.

NOVEMBER 16-17.—PADUCAH, KY.
The Kentucky Municipal League. Annual convention. Executive Secretary, Carl B. Wachs, Municipal Building, Lexington, Ky.

NOVEMBER 16-17.—NEWPORT NEWS, VA.
Virginia Water and Sewer Works Association. Annual meeting. Secretary, H. W. Snidow, Department of Health, 601 State Office Building, Richmond, Va.

NOVEMBER 22-24.—EDMONTON, ALTA. (250)
Alberta Association of Municipal Districts. Annual convention. Secretary, E. Pinchbeck, Spruce Grove, Alta.

DECEMBER 4-8.—NEW YORK. (1,500)
American Society of Mechanical Engineers. Annual meeting. Secretary, C. W. Rice, 29 West 39th Street, New York.

DECEMBER 5-7.—BRANDON, MAN. (300)
Union of Manitoba Municipalities. Annual convention. Secretary, John Spalding, Miniota, Man.

DECEMBER 7-8.—WASHINGTON, D. C. (200)
Highway Research Board of the National Research Council. Annual meeting. Director, Roy W. Crum, B and 21st Street, Washington, D. C.

DECEMBER 8-9.—ATLANTIC CITY, N. J.
New Jersey Health and Sanitary Association. Annual meeting. Secretary, Edward Guion, Box 418, Atlantic City, N. J.

DECEMBER 9.—LOS ANGELES, CALIF. (150)
California Conference on City Planning. Annual convention. Secretary, C. J. S. Williamson, Chamber of Commerce Building, Los Angeles, Calif.

JANUARY 6.—BOSTON, MASS.
Massachusetts State Association of Selectmen. Annual meeting. Executive Secretary, Harris A. Reynolds, 4 Joy Street, Boston, Mass.

JANUARY 13.—PROVIDENCE, R. I.
Rhode Island Town and City Clerks' Association. Annual meeting. Secretary, Alice A. Tonge, Deputy Town Clerk, Town of Warwick, Apponaug, R. I.

JANUARY 17-19.—NEW YORK.
American Society of Civil Engineers. Annual meeting. Secretary, George T. Seabury, 33 West 39th Street, New York.

JANUARY 18-19.—POCATELLO, IDAHO. (250)
Idaho State Chamber of Commerce. Annual meeting. Secretary, L. F. Parsons, 524 Idaho Building, Boise, Idaho.

JANUARY 22-26.—LAFAYETTE, IND. (600)
Purdue Road School. Annual school. Address: Professor Ben H. Petty, Engineering Extension Department, Purdue University, Lafayette, Ind.

JANUARY 23-26.—NEW YORK.
American Institute of Electrical Engineers. Annual winter convention. Assistant National Secretary, H. H. Henline, 33 West 39th Street, New York.

JANUARY 25.—BOSTON, MASS. (100)
Massachusetts Association of Boards of Health. Annual meeting. Secretary, George T. Lennon, Department of Health, Haverhill, Mass.

JANUARY 29-31.—WILKES-BARRE, PA. (250)
Pennsylvania State Association of Township Commissioners. Annual convention. Secretary-Treasurer, H. A. Fritschman, Eagle and Darby Roads, Upper Darby, Pennsylvania.

APRIL.—AUGUSTA, GA.
American Water Works Association—Southeastern Section. Annual meeting. Secretary-Treasurer, W. H. Weir, 4 Capitol Square, S. W., Atlanta, Ga.

APRIL 2-6.—LOS ANGELES, CALIF. (400)
School of Citizenship and Public Administration—University of Southern California. Annual Institute of Government. Executive Secretary, Walter E. Sykes, University Park, Los Angeles, Calif.

JUNE 14-15.—GREEN BAY, WIS.
League of Wisconsin Municipalities. Annual convention. Secretary, Frederick MacMillin, 114 North Carroll Street, Madison, Wis.

National Organizations Cooperate to Improve Municipal Accounting

THE most significant movement ever undertaken for the improvement of municipal accounting took place in Chicago on October 28. At that time representatives of seven national organizations interested in that subject were called together by the Public Administration Clearing House to consider methods of cooperation. As a result of the meeting a joint committee will be formed of representatives of each of the groups to work with a full-time staff to be provided by the Municipal Finance Officers' Association.

The work to be carried on will deal with the questions of terminology, classification of accounts, forms of reports for various purposes, basic material for uniform statistics, specifications for audits and related subjects. An important part of the committee's work will be the promotion of interest and the acceptance of principles and standards that it may adopt. It also wishes to secure revision of the forms of financial statistics assembled by public bodies, in order to bring them into harmony with the classification eventually adopted by the committee.

The organizations were represented as follows:

American Society of Certified Public Accountants—George P. Ellis, President, Chicago, Ill.

American Institute of Accountants—Professor Lloyd Morey, University of Illinois, Urbana.

National Association of Cost Accountants—A. E. Neals, City Auditor, Springfield, Mass.

American Association of University Instructors in Accounting—Professor H. C. Greer, University of Chicago.

American Municipal Association—Harold D. Smith, Michigan Municipal League, Ann Arbor.

National Association of State Auditors, Comptrollers and Treasurers—Edmund R. Stewart, State Auditor of Maryland.

Municipal Finance Officers' Association—Frank J. Flanagan, Finance Committee Staff, Chicago.

The International City Managers' Association and the Bureau of the Census were invited to participate in the work of the committee.

CARL H. CHATTERS,
Executive Director, Municipal Finance Officers' Association.

Handkerchief Map of Washington to Aid George Washington Memorial Parkway

FREDERIC A. DELANO, Chairman of the National Capital Park and Planning Commission and President of the American Civic Association, has had manufactured a handkerchief map of Washington and the surrounding country, which has been copyrighted by the American Civic Association. The net proceeds from the sale of the handkerchief map will go to the George Washington Memorial Parkway Fund.

The handkerchief map, here reproduced, is about 28 inches square. Mildred G. Burrage, of Kennebunkport, Maine, drew the design, which shows not only the original L'Enfant Plan but a map of the surrounding country and its important landmarks, bordered by sketches of the notable buildings of the Nation's Capital.

Many uses have been suggested for the maps. They may be antiqued with lacquer or shellac and framed as an interesting wall decoration. They may be placed under glass for card table trays. They can be used as handkerchief, scarf, apron, table cover, or sewed together to make bags, bed spreads, window draperies, or even garments.

The handkerchief maps may be ordered from the American Civic Association, 901 Union Trust Building, Washington, D. C., at $1 each.

with Steel

THE summer vacationist seldom has an opportunity to realize the violence of which the storm-tossed North Atlantic is capable.

This 1500-ft. bulkhead at Deal, N. J., built of Bethlehem (Lackawanna) Piling in 28-ft. lengths, will offer firm resistance to the wildest winter storms, keeping the fine residences and broad, sloping lawns that border the sea at this point secure from attack.

Thomas Procter Company, Long Branch, N. J., Contractor

The lower photograph shows another portion of this same bulkhead under construction. After completion of the bulkhead, groins of Bethlehem (Lackawanna) Piling will be constructed to build up the beach.

Bethlehem (Lackawanna) Steel Sheet Piling offers important advantages in shore-protection structures. It is readily driven or jetted to depths that can be attained with other materials only with difficulty and at greater cost. It forms a wall with strong, sand-tight interlocks between the individual pieces. It is the strongest material available for the building of shore protection structures.

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NEWS AND ILLUSTRATIONS

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

A New Diaphragm Pump

A hand-operated diaphragm pump which answers the requirements of municipal departments and contractors for a small non-chokable pump has been announced by the Edson Corporation, South Boston, Mass. This new No. 1 diaphragm pump weighs only 53 pounds and can be carried on any service truck as a part of the regular equipment. It takes up very little space, and can be lifted by one hand; yet with its 2-inch suction and a capacity of some 1,400 gph up to 25 feet of suction lift, it makes an efficient and necessary item of service equipment.

THE NEW EDSON HAND-OPERATED DIAPHRAGM PUMP

The Edson Corporation shows a full-page description of this and other sizes of pumps, both hand and power, together with its high-grade suction hose, Red Seal diaphragm, brass couplings and other pump accessories, in the 1933 edition of The Municipal Index.

Light-Weight Wheelbarrows of Aluminum

Aluminum alloy wheelbarrows, which are claimed to weigh less than half those of steel, are made by the Sheet Aluminum Corporation, Jackson, Mich. These wheelbarrows have the tray and frames made of aluminum alloys, with wood handles, anti-friction bearings in the wheel, and pneumatic tires. The light weight makes possible increased pay loads with less fatigue on the operator, and the pneumatic tire makes it possible to use the barrows without runway planking in many cases.

THE NEW ALUMINUM 4½-CUBIC-FOOT WHEELBARROW

A Spiral Scarifier

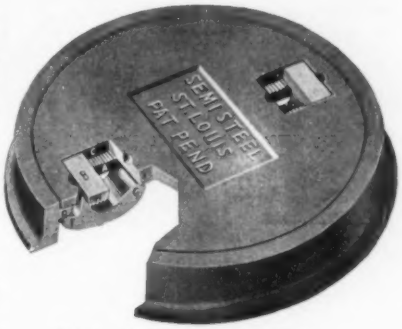
A simple, inexpensive unit for scarifying old roads in preparation for retreating or resurfacing and for many other purposes has been developed by the Moritz-Bennett Corporation, Effington, Ill. This Moritz spiral scarifier digs to any desired depth, cuts a smooth bottom surface, chews up the scarified material, whether it be on old or new roads, and turns and mixes the materials. This last feature is very important when mixing oiled surfaces on secondary roads or streets.

THE MORITZ SPIRAL SCARIFIER AT WORK

The scarifier, excluding the tractor hitch, is 12 feet long, the spiral is 18 inches in diameter, and it is 7 feet extreme width. This is a simple, inexpensive unit in which both city officials and contractors will be greatly interested.

A Noiseless Manhole Cover

Ninety per cent of manhole cover breakage is said to be due to loose covers and the pounding such covers receive from constant traffic. Twenty-five per cent of all loose covers have to be replaced in ten years, on account of wear alone. In addition, noisy manhole covers are a serious nuisance in residential and business sections of a city as well as being dangerous.



THE RIGID-LOCK MANHOLE COVER

The Rigid-Lock manhole cover, which is manufactured by the Semi-Steel Casting Co., 109 East Quincy Street, St. Louis, Mo., is designed to overcome such conditions. It locks securely to the frame of the manhole and cannot rattle or come loose. It is made of semi-steel, with extra strength, and is weather-resisting. The locking parts are of malleable iron and can be adjusted to any conditions found in individual frames. Both covers and frames for either round or square cover types, or covers only to fit frames already installed, can be furnished.

A New One-Way High-Speed Snow-Plow

A new snow-plow known as Model 31, a one-way high-speed plow designed for use on 1½-ton trucks, has been announced by the Good Roads Machinery Corporation, Kennett Square, Pa., as an addition to its complete line of Good Roads Champion plows. Features of this plow are a moldboard especially shaped with a funnel curvature to give maximum results with a minimum of effort by the motive power; a semi-circle providing adjustment of the plowing angle to suit varying snow conditions; a safety trip feature to prevent damage to the plow or truck when encountering an obstruction; and an oscillating feature to suit the contour of the road surface.

The plow is carried on 10-inch diameter roller-bearing full-swiveling castor wheels made of extremely hard alloy steel and readily adjustable to compensate for wear on the cutting edge. These wheels relieve the truck of a great deal of the dead load. The plow is furnished standard with an underframe which attaches to the truck chassis back of the cab, so that none of the push load is taken on the front axle.

Monroe Ave., Scranton, Pa.

Monroe Ave., from Vine to Olive St., Scranton, Pa., was paved with Native Lake Asphalt in 1905. Notwithstanding the terrific pounding of constant use, not one cent has been spent on it for repairs or maintenance in 26 years, and it is still in good condition.

Economy! It pays to lay paving that lasts!

For long life and low maintenance cost Native Lake Asphalt proves its service. Its record is outstanding. Millions of square yards of this paving on streets and roads throughout the United States and foreign countries demonstrate the endurance and economy of Native Lake Asphalt.

If the need for new streets and roads confronts you — and reduced appropriations hamper you—consider Native Lake Asphalt.

It not only gives long years of service in new pavements, but will transform old rutty streets and dusty roads into smooth, dustless highways at comparatively low cost. It may be laid over present foundations of old concrete, brick, granite or wood-block—with only the asphaltic top to pay for.

We'll gladly furnish upon request detailed information, giving the interesting service records of Native Lake Asphalt pavements.

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Good Roads Champion
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For 1½ to 2½-ton trucks

Safe at high speeds

1. High-speed, One-way Mouldboard, special funnel—curvature for maximum efficiency.
2. Adjustable Plowing Angle for varying snow conditions.
3. Safety trip feature.
4. Supported on 10 in. diameter roller-bearing, full swivelling castors, adjustable for edge wear.
5. Oscillating feature to suit road contour.
6. Underframe attachment to truck chassis.
7. Hydraulic Lift.
8. Twenty years of experience behind it.

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Install Stewart Fence

Staunch Stewart Iron or Chain Link Fences work twenty-four hours a day protecting and beautifying most municipal properties. You'll find a Stewart design that will serve any purpose admirably.
See Stewart pages in *Municipal Index*. Write for complete catalog.
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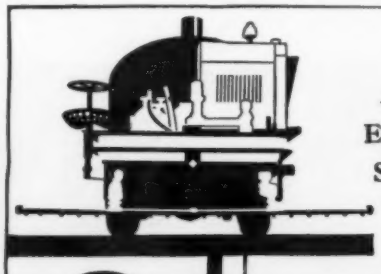

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CINCINNATI, OHIO

AN ALLIS-CHALMERS 35 TRACTOR AND GRADER OWNED BY THE CITY OF AMARILLO, TEXAS, AND USED TO MAINTAIN ROADS ON THE OUTSKIRTS OF THE CITY

Horner Opens Consulting Office

W. W. Horner, Consulting Engineer to the city of St. Louis, Mo., and to the city of Dallas, Texas, a member of the Board of Technical Review of the National Public Works Administration, has announced the opening of an office for the practice of engineering at 1325 International Office Building, 722 Chestnut Street, St. Louis. Mr. Horner, who is a member of the American Society of Civil Engineers, will have associated with him another member, H. Shifrin, former Assistant Chief Engineer, Department of Sewers and Paving of St. Louis.

A New 1,800-Pound Hydraulic Bulldozer

The new Western hydraulic bulldozer No. 35, which weighs 1,800 pounds but is capable of resisting great strains, is a simplified unit with high lift and very low undercut. It is built by the Austin-Western Road Machinery Co., 400 North Michigan Avenue, Chicago, Ill., to match the full power of a Cletrac 35. The bulldozer is easy to attach and may be removed and replaced quickly and easily.

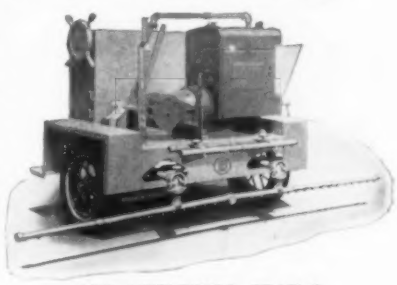
According to the manufacturer, the adaptability of the Cletrac tractor for drawbar work is never impaired, and the turning clearances are not restricted in the least. The oil pump is mounted out of the way behind the driver's seat in the position of the power take-off. The blade can be raised or lowered to any position and held rigidly, or it can be allowed to float and the tilt of the blade can also be varied. A gear pump provides smooth positive manipulation. Pressure is applied to the blade in four directions, and the lever operating the four-way control valve requires only finger-tip manipulation. The heavily reinforced blade rolls the material instead of pushing a dead load ahead. A high carbon steel bit, which is reversible to provide double wear, and shoes of wear-resisting alloy steel with replaceable soles, extend the life of this piece of equipment.

THE NEW WESTERN HYDRAULIC BULLDOZER

A Tank Truck Auxiliary Distributor

Where long hauls are involved on penetration jobs or on road oiling, it is expensive to tie up complete distributor units merely for hauling the bituminous material. The Trail-O-Distributor made by Littleford Bros., 500 East Pearl Street, Cincinnati, Ohio, remains on the job and is attached to each tank truck as it arrives on the work. The Trail-O-Distributor is nothing more or less than the working end of a Littleford pressure distributor mounted complete on a separate trailer unit. The high-speed trailer is equipped with pneumatic tires, Timken roller bearings and semi-elliptical springs. A novel feature of the trailer is its adjustable tongue which can be made to fit trucks of any height. This feature is very desirable, for, quite frequently, trucks of different makes are used with the supply tanks to which the distributor unit is connected. After the spray bar on the Trail-O-Distributor is adjusted to the desired position, it is unnecessary to make further adjustment when supply tanks are changed; the adjustable tongue takes care of the differences in truck heights, and the spray bar remains in the correct position.

The Trail-O-Distributor can be provided with either a 200- or a 300-gallon pump. It has the Littleford single valve control, which makes possible the shortest pipe connection to the spray bar, and it is possible to suck the material from the spray bar back to the tank, thereby entirely eliminating dripping after the spraying is cut. This valve mechanism is so arranged that one or two connecting hoses to a supply tank can be used. If the supply tank has a heating unit, it is possible with two hoses to circulate material in the tank while the temperature is being raised. If it is not necessary to circulate the material, only one hose need be hooked up to the supply tank. Another feature is that pipe fittings, pump and valve mechanism are enclosed in a chamber, enabling the operator to warm these parts when operating in cool weather. It is also arranged so that a burner can be placed in this hood.



THE LITTLEFORD TRAIL-O-DISTRIBUTOR

American Cyanamid Co. Acquires Filtration Equipment Corp.

The American Cyanamid Co., 535 Fifth Avenue, New York, has announced the acquisition of the Filtration Equipment Corporation, which owns the Laughlin equipment and process of sewage treatment by chemical-mechanical methods. The officers of the new corporation are: R. C. Jeffcott, President; W. C. Laughlin, J. T. Fetherston, and John W. Boyer, Vice-Presidents; C. B. E. Rosane, Treasurer, and W. S. Weeks, Secretary.

The new corporation will operate as a separate division of the parent company and actively promote further installation of this equipment and the modern processes of sewage disposal as exemplified in the plant installed and successfully operating at Dearborn, Mich. The headquarters of the Filtration Equipment Corporation will continue to be maintained at 350 Madison Avenue, New York.

A New Safety Highway Guard

A new safety highway guard which is an application of entirely new principles designed to meet the severe traffic conditions of the present time has been announced by The Machined Steel Casting Co., Alliance, Ohio. The installation consists of a horizontal pipe of 4-inch

POINTING OUT A GOOD INVESTMENT

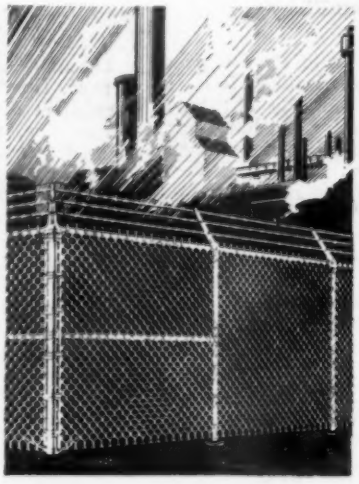
Cyclone Fence

PROTECTION of income producing facilities is an investment which pays thousands of organizations big dividends yearly. Theft, property damage and libel suits cut heavily into income. It is impossible to tell when you will be the next victim.

You can easily and economically eliminate the possibilities of such losses by the installation of Cyclone Fence. Adequate, twenty-four hour a day protection can be secured at a surprisingly low cost per year of service. Cyclone Fence lasts years longer and has practically no maintenance cost.

Made of rust resistant copper-steel by a company with forty-seven years of quality fence building experience. Erection by our factory-trained men may be secured economically or your own men can erect it if you desire. Write for catalog and complete information, no obligation. Address Dept. A.C.

Cyclone — not a "type" of fence — but fence made exclusively by Cyclone Fence Company and identified by this trademark.



CYCLONE FENCE COMPANY

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SUBSIDIARY OF UNITED STATES STEEL CORPORATION

Pacific Coast Division:

Standard Fence Co., General Offices, Oakland, California

MONARCH

Reversible Blade

SNOW PLOWS

Universally Adaptable to any Standard Make of Motor Truck. Equipped with Manual or Hydraulic Lifting Device. Electrically Welded.

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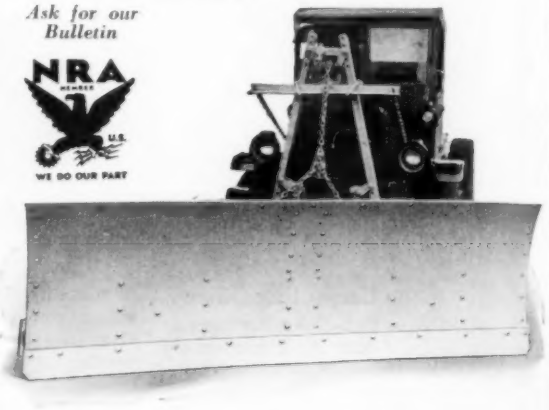


BUILT BY

MONARCH MFG. COMPANY, INC.

WILMINGTON DELAWARE

SINCE 1867

COLDWELL

Above: Coldwell "L-Twin" motor lawn Mower and roller. Mows and rolls simultaneously 4 to 6 acres a day on one gallon of gasoline. With gang units attached it cuts a 60-inch swath, ten acres per day on one gallon of gasoline.

A Dependable and Economical Power Lawn Mower Is Bound to Be Satisfactory

THE Coldwell Power Lawn Mowers and Rollers perform the two operations simultaneously which cut the cost and produce finer results.

The Twin cylinder motors deliver an abundance of power for all cutting conditions and provide large capacity mowing at small expense.

Sturdy but simple construction throughout insures dependable performance.

There's a style and size suited for any type of lawn.

Sales and Service facilities in all principal localities.

Full particulars on request.

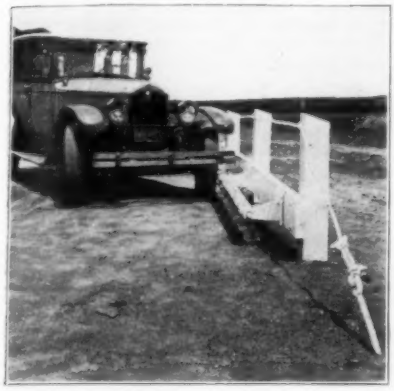
COLDWELL LAWN MOWER CO., NEWBURGH, N. Y., U. S. A.

In Canada—Taylor-Forbes Co., Ltd., Guelph

Manufacturers of **DEPENDABLE** *Lawn Mowers* — HAND, HORSE, GASOLINE, ELECTRIC

outside diameter mounted on suitable bearings which permit it to rotate freely, and mounted so that the only contact between the automobile and the guard is on the tire. When struck by the wheel of the car which is rotating in a downward direction, the pipe is likewise set into an inwardly downward rotation, making it impossible for the wheel to climb over the guard; thus the car is diverted back on to the highway.

There is a four-way cushioning effect caused, first, by the tire, then the rotation of the roll, then the bearings of the guard which are sufficiently loose, and, fourth, the steering gear, which starts to turn the moment the tire strikes the roll. The pipe, which is supported by sturdy rolled steel standards rigidly bolted to a heavy concrete base or standard guard fence, is placed sufficiently low to preclude any possibility of injury to fenders, bumpers, hub caps, running-board, or body of the car.



THE NEW ROTARY SAFETY HIGHWAY GUARD

New Traffic Control Light

A traffic control light which varies radically in appearance from the conventional type which has lens openings in red, amber and green lights has been developed by Victory Methods, Inc., 94-98 8th Street, Wellsburg, W. Va. This light has only four lens openings, instead of twelve, with one opening facing in each direction. The lamp is spherical in shape, with segments removed to make the four vertical faces in which the 7-inch diameter lenses are inserted. At the proper intervals as the conventional colors of red, amber and green are required in rotation, they appear without the use of moving parts. This is accomplished by installing in a reflecting chamber back of each lens a set of gaseous discharge tubes, each of which is capable, when energized, of illuminating the chamber with red, amber or green rays, in turn visible through the lenses.

The manufacturer claims that the confusion encountered with the present conventional style of lights when the direct or reflected rays of the sun strike the color lenses, giving "phantom signals," is entirely overcome by this light. They further state that this Monolenz light is low in first cost and upkeep and makes a material saving in electrical energy.

A LIGHT-WEIGHT, HEAVILY REINFORCED WESTERN SNOW-PLOW MOUNTED ON A 1½-TON TRUCK

The plow, sold by Austin-Western Road Machinery Co., Chicago, Ill., is shown operating in wet snow at high speed

An Admixture for Mixed Asphalt Materials

An admixture has been developed by Warren Bros. Co., Boston, Mass., which, when added to bituminous mixtures increases the workability of the mixture. By the addition of this material, asphaltic mixtures may be produced with any desired gradation from a coarse aggregate asphaltic concrete to a fine sheet asphalt. It requires no special equipment, for it can be used in any standard hot mix paving plant. The procedure is the same as with other hot mixes except that the temperature of the aggregate is somewhat lower, between 250 and 300 degrees Fahrenheit. After the aggregate is introduced, the hot asphalt is added and allowed to mix until each particle is coated. The Workability Composition, the name of the new admixture, is then added in the amount of 10 to 12.5 per cent by weight of the amount of asphalt used. Where the mixture is to be laid the same day it is mixed, the amount of composition can be reduced slightly below 10 per cent. Somewhat less asphalt is used in these mixtures than is normally required by standard specifications, for the Composition is a bituminous product which, when added, becomes a part of the cementing medium.

The Composition does not liquefy the asphalt, but forms a film on the outside of each asphalt-coated particle, which is at first non-cementitious and prevents the particles from adhering to one another until the composition has diffused through the asphalt. Later it hardens by oxidation rather than by volatilization, and becomes a cementitious material thoroughly incorporated with the asphalt cement.

Its use permits the laying of hot mixtures with a high degree of workability at extremely low temperatures, and also permits production of any desired kind of cold lay paving or repair mixture, which may be stored and used as needed. Its use in standard paving mixtures within the amounts specified in no way deteriorates or decreases the durability of the mixtures; in fact, the manufacturer claims that its use produces a more adhesive asphalt cement. Further, it permits the construction of bituminous pavements during cold weather except when it is snowing or raining.

THE NEW MONOLENZ TRAFFIC CONTROL LIGHT

M·S·A
FIRST AID
EQUIPMENT

"A man may be down but he is never out," with an MSA First Aid Kit on the job—contains everything necessary to properly treat wounds, burns, fractures, shock or severe bleeding.

The MSA Heavy Duty First Aid Kit illustrated, is an excellent all purpose kit and is available in four sizes, —10, 16, 24, and 36 units, neatly packed in 20 gauge steel cases, electrically welded and built to withstand the hardest usage. The unit packages of dressings, splints and other items are so packed that they cannot shift or become disarranged.

Do you have our First Aid Materials Catalogue FA-2?

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GENERAL OFFICES: BRADDOCK, THOMAS AND MEADE STS., PITTSBURGH, PA.

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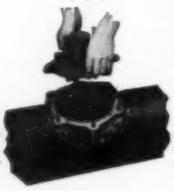
M. S. A. EQUIPMENT Includes Breathing Apparatus . . . Inhalators . . . Masks of All Types . . . Gas Indicators . . . Eye and Head Protectors . . . Edison Electric Cap Lamps . . . Safety Clothing . . . First Aid Equipment . . . Descriptive Bulletins will be sent on request.



KNOW
Your Total Pumpage

KNOWLEDGE of Total Delivery is at the basis of all water plant economies. Efficiency depends on it. Lost distribution cannot be determined without it.

The Sparling Main-Line Meter is ACCURATE. It gives the exact gallonage every day of the year, instantly and in plain figures. It induces more careful maintenance and operation of pumps and a keener interest in improving efficiency records.

The Sparling Main-Line Meter is EASILY INSTALLED. In two hours you can have it operating on your existing pipe line without disturbing any fittings or connections.

Bulletin No. 301, covering Main-Line Meters, Totalizing and Recording Equipment, sent to waterworks executives on request.

R. W. SPARLING

CHICAGO 3019 So. Michigan Ave. NEW YORK 101 Park Avenue
LOS ANGELES: 945-51 N. Main St.

Portable Asphalt Maintenance Plants

A PORTABLE UNIT WITH A CAPACITY OF 400 YARDS PER DAY

ACCURATE CONTROL OF MATERIALS ASSURING ACCURATE MIXTURE TO COMPLY WITH ANY STANDARD SPECIFICATIONS

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INDIANAPOLIS, IND.

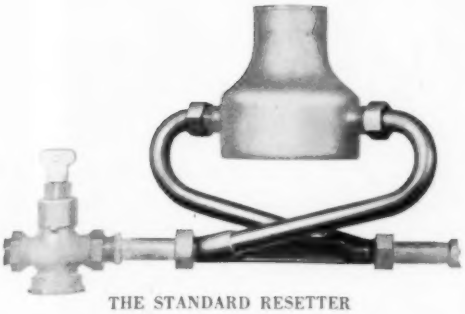
Stationary — Railway — Portable and Semi-Portable Plants

RENSSELAER VALVES
COREY HYDRANTS

Tapping Sleeves, Tapping Valves, Crosses, Split Repair Sleeves, Post Indicators, Floor Standards, Air Valves, Valve Boxes, Grease Cases, Etc.

Write for Catalog "G"

RENSSELAER VALVE CO.
TROY NEW YORK



THE STANDARD RESETTER

Resetting Water Meters

Hundreds of thousands of water meters set straight in the line in meter boxes between ordinary meter couplings are too low. Such meters are hard to read, are often partially covered with dirt, mud or water, and are extremely difficult to change, not only because they are too low, but also because there is no elasticity or flexibility in such a piping arrangement and slight variations in meter length and gasket thickness cannot be compensated for. Formerly the raising of such a meter required digging up the meter box, cutting the service line and using several ells and fittings, a difficult and expensive operation.

THE SPECIAL RESETTER, WHERE GREATER HEIGHT IS ADVANTAGEOUS

Raising a meter now with the Ford Resetter, made by the Ford Meter Box Co., Wabash, Ind., is a simple operation. The meter is removed from between the old couplings, the Resetter is connected between the couplings in the position formerly occupied by the meter, and the meter is then connected between the flanged copper tubes on the Resetter. No pipe fittings of any kind are required, no pipe joints are made, and it is seldom necessary to dig up the meter box.

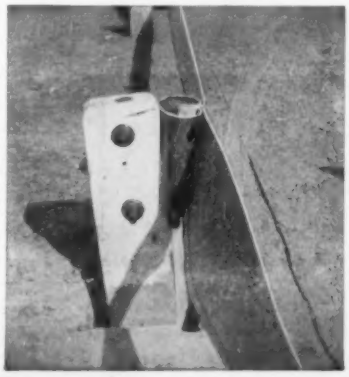
The Resetter is all copper and brass. Because of the smooth, oversize copper tubing and easy bends, the pressure loss through the Resetter is about half what it would be through the ordinary fittings which would be used to raise a meter. The all-copper waterway insures freedom from rusting and tuberculation, which impairs the flow through iron fittings. The flanged ends of the copper tubes are spaced to receive the meter and two gaskets, with a little space to spare. When the nuts are tightened on the meter, the tubes are pulled in slightly to make tight joints. The standard Resetter raises a $\frac{5}{8}$-inch meter 5 inches from the old position. At a small additional cost either the Resetter or the Coppersetter, which is similar for new water meter services, can be furnished for elevating the meters either 9, 12 or more inches.

A Resilient Highway Guard-Rail Plate

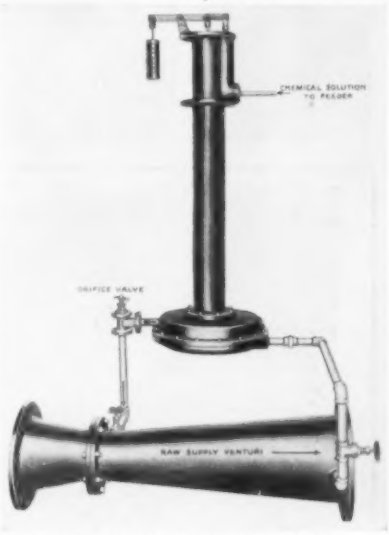
A resilient highway guard-rail which yields slightly when struck by a car and then by its reflex action throws the front end of the automobile back, at the same time straightening the wheel so that the course of the machine is parallel to the guard, has been developed by the Truscon Steel Co., Youngstown, Ohio. The Truscon Duraguard has high visibility, for the white posts with the continuous band of galvanized or white-painted steel, 12 inches wide, stand out clearly against any background, either in broad daylight or in dark night.

There are two types of brackets for mounting Duraguard. Bracket D-1 is a rigid bracket especially adaptable to rigid steel uprights on bridges and viaducts, while bracket DC-1 is a cushion bracket adaptable to all general guard-rail uses. The plates are 12 inches wide, of a gage as specified, with reinforced end connections fitting either the rigid or the cushion bracket type, as well as with end post and bridge end connections. The sheets are so fabricated that they will take care of expansion and contraction as well as serve to keep the entire section of guard-rail in tension at all times. The manufacturer recommends that guard-rail posts, whether steel, concrete or wood, be set at least 4 feet in the ground and that the guard-rail be not more than 12 inches above the grade line, also that the post does not extend above the guard-rail more than 1 inch.

Unless otherwise specified, all Duraguard sections are sold in standard lengths requiring post spacings 16 feet on center, except the end sections, which are 8 feet on center. The intermediate sections measure exactly 15 feet $11\frac{3}{4}$ inches, and the end sections 7 ft., 6 in.



A DURAGUARD PLATE AFTER A TEST WITH A 3,700-POUND SEDAN



THE NORWOOD PROPORTIONAL SOLUTION FEEDER

A Simplified Proportioning Solution Feeder

A proportioning solution feeder designed to accurately control chemical dosage in water-supply systems has been developed by the Norwood Engineering Co., Florence, Mass. The feeder is controlled by a venturi throat which is connected to the upper side of the controlling diaphragm. The lower side of the controlling diaphragm is connected to the large end of the venturi downstream of the throat. The main supply downstream pressure acting on the diaphragm opens a throttle sleeve valve at the top of the solution column, admitting the solution to the column. The solution level in the column builds up until it balances the main supply pressure and then closes the throttle. A constant solution head is thereby maintained on the adjustable orifice which feeds the chemical solution direct to the raw supply at the throat of the venturi.

When there is no flow in the main supply, the throat pressure balances the solution head, and no solution passes through the orifice. The flow in the main supply causes a reduction in pressure at the venturi throat, resulting in a pressure differential at the orifice, and solution feed begins immediately. The effective head on the orifice is the difference between the solution level and the throat pressure level. Hence, the solution flow is proportional to the square root of the effective head, which is proportional to the flow of water through the venturi.

GENERAL ILLUMINATION ENGINEERING CO.

Cincinnati, Ohio · · · · · · Carew Tower

STREET LIGHTING
- ZONING SURVEYS
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- DISPLAY
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There is much more to street illumination than simply providing light

By the same token the odds are 5 to 1 that your present lighting appropriation (or even less) can be made to provide more effective illumination with increased "Seeing Ability," insuring greater safety and the elimination of needless accidents and crime which now keep up insurance costs. Lite-index specified illumination will solve your street lighting problems. Write General Illumination Engineering Co.

LIGHTING EXPERTS SELLING NOTHING BUT SERVICE

LYLE SIGNS

will help you to
—Reduce Accidents
—Beautify Your City
—Make Permanent Improvements
—Control Traffic

Write for 1933 Catalog

LYLE SIGNS, INC.
MINNEAPOLIS

"HVASS"
SPREADERS
Conquer Slippery Pavements

Spread full width street or road at one time or any part thereof.
—SPREAD—
SAND, ASHES OR CINDERS
Can be quickly attached or detached.
Write for descriptive bulletin.

CHAS. HVASS & CO., Inc. 508 East 19th Street, New York City

Buffalo-Springfield's complete range of models in both three-wheel and tandem rollers permits the purchaser to select the proper machines for his work.

NRA WE DO OUR PART

The Buffalo-Springfield Roller Co.
Springfield, Ohio

BUFFALO-SPRINGFIELD

GET A BETTER JOB AT LESS COST

With Hotstuf TRADE MARK

WRITE US FOR BULLETINS

MAINTENANCE EQUIPMENT
ASPHALT HEATERS
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WEED BURNERS
TRAILER TOOL BOXES FOR SERVICE DEPARTMENTS

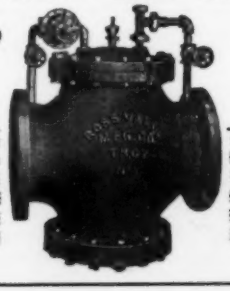
MOHAWK ASPHALT HEATER CO.
Frankfort New York

THE STANDARD FOR 50 YEARS

Automatic Pressure Control Valves
Feed Water Filters Portable Fire Hydrants
Hydraulic Engines Hydraulic Booster Pumps

ROSS VALVE MFG. CO., INC.

ARCHIBALD STREET TROY N. Y.



CHAIN LINK FENCE PROTECTING A WATER TANK

Protective Fencing for Municipal Use

A type of fence which is adaptable to many municipal uses, such as enclosing airport areas, water-works and sewage treatment plants, athletic fields, and other municipal properties, must have stability and good appearance. The Style 3-T fence developed by the Chain-Link Fence Corporation, Chicago, Ill., has been used extensively for these purposes. It is made in heights from 7 to 11 feet over-all, including three barb-wire strands. The fence fabric itself is 1 foot less in height. The fabric is the Chain-Link copperbearing fencing with a 2-inch standard mesh, or No. 9 or No. 6 gage. It is galvanized after fabrication.

The posts and rails are hot-dipped galvanized and are made of full-weight tubular copper-bearing steel. The line or intermediate posts, which are 2½ inches outside diameter, are spaced 10 feet apart, weigh 3.65 pounds per foot and extend from 30 to 36 inches below grade. They are set in reinforced concrete bases of sizes as required by the soil conditions for the particular installation. The concrete base is continued 3 inches or more below the end of the posts. The extension arms of the posts are of pressed steel on malleable bases which fit over the posts to exclude moisture. The top-rail, which is 1⅝ inches outside diameter, is connected to the posts with expansion sleeve couplings.

End, corner and pull posts are 3 inches outside diameter and weigh 5.79 pounds per lineal foot with tube and rod braces. Bands of unclimbable bevel edge are used to attach the fabric with tension bars. The corner posts have a heavy forged steel arm attached to the post by a collar for the support of the three barbed wire strands at a 45 degree angle 12 inches above the fabric and 12 inches in or out from the fence line.

Gates for these fences may be of the cantilever slide type with an outside track or swing or other types of sliding gates as desired.

A New Gang and Power Mower

The Crown Mower Co., Chrysler Building, New York, has announced new features in the Crown unit for fairway and lawn-mowing. Among the features will be the non-restriction of the use of the Crown mowing unit to its own multiple gang frame. The units, which are 30 inches in cutting swath, may be used in frames of Toro, Worthington or Pennsylvania types. A simple device for removing the fly knife reel has been developed and has a patent pending. A single hand adjustment, which is positive in its action, causing constant parallel and rigid bed knife action, is another feature on which a patent is pending. A reversible special alloy double-edge bed knife steel is used.

The large steel roller, revolving on high-grade bearings, is regulated by hand adjustment. These adjustments are graduated positively from ½-inch to less than 1/16-inch, and yet by shifting the roller brackets the height of cut is gaged from ¼-inch to 6 inches. This will enable the operator to adjust the mower at will to any height of cut required.

The manufacturer claims that the Crown unit is lighter than any 30-inch unit on the market of comparable design, and yet its box construction eliminates weaving of the side frames. The machine requires no oil or grease, since it is packed with a Crown lubricant and guaranteed for one year.

E. H. Worthington, formerly of the Worthington Mower Co., Stroudsburg, Pa., is President and Consulting Engineer of the Crown Mower Co.

A New Mechanical Sweeper Unit

A sweeping machine which has 80 per cent of the total weight on the driving tires, thus assuring traction in wet weather, snow and ice, has been developed by The Howell Industrial Truck Co., 6545 Carnegie Avenue, Cleveland, Ohio. Four standard truck-type skid chains can be applied to the driving tires, as well as two skid chains to the steering tires. All rotating parts of the machine run on roller or ball bearings, either in an oil bath or fully protected from dust by grease-seals.

The broom housing core, which is full bearing equipped, revolves on a steel tubing shaft, assuring alignment and even wear of the broom. The broom can be changed by one man in ten minutes, according to the manufacturer's statement. The ball and roller bearing construction permits easy rolling of the broom drive and effects economy in the gasoline required. The machine has four forward speeds, giving selection of the right broom and propulsion speed for the work to be done, thus minimizing the amount of dust produced. The broom pressure on the ground is adjustable to suit conditions, saving unnecessary wear on the broom. The broom fibers are fully shrouded from the broom core driving chain. This protection excludes dirt from the chain and sprockets. The rotating action of the broom may be started or stopped whether the machine is in motion or running idle.

Raising Sunken Sidewalks

The Mud-Jack, now so well-known to highway builders as the machine which pumps a mixture of mud and cement beneath sunken slabs of highways and jacks them up to grade, has been supplemented by a new and smaller unit applicable to the lifting of sunken sidewalks, curbs and gutters. This Mud-Jack, made by the National Equipment Corporation, Milwaukee, Wis., is a special pump which forces mud under pressure through holes in the slab of concrete to be raised. Employment of the jack entails the use of a rotary drill operated by an air compressor which cuts holes about 2½ inches in diameter into the concrete. A mixture of black soil, water and cement is then forced into the holes by the jack.

The principle involved is the exertion of a small amount of pressure per square inch on the entire area of the slab to be raised, creating great lifting power. The machine, no more than 3 feet high, raises to established grades large slabs of concrete that sometimes weigh several tons. The first of the new smaller units was purchased by Shorewood, Wis., and has been used by that municipality for raising sunken sidewalks, curbs and gutters. This is work which may be done either by a city with its own forces or by contractors operating over a large area.

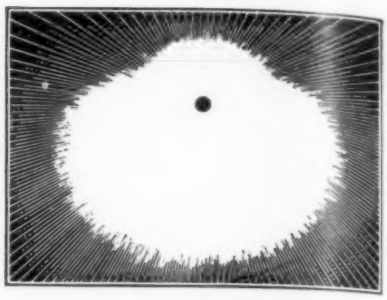
THE HOWELL MECHANICAL SWEEPER

HOLOPHANE *Alone* Shapes the Light to the Street

EFFICIENCY? No other units for re-directing light place so much illumination on the street or highway as Holophane Asymmetric Refractors. None but Holophane even attempts to shape the light scientifically to the character of the roadway and the demands of traffic . . . **DEPENDABILITY?** Holophane Refractors do not shorten the life of the Mazda lamp or reduce or impair its light. On the contrary, they protect it from breakage, and conserve its light—during its entire life . . . **COST?** With Holophane Refractors it is not necessary to pay for re-directing light every time the lamp fails. The refractors are a permanent part of the street lighting fixture, and a permanent investment, for they do not deteriorate in service . . . **ACCEPTANCE?** Holophane Refractors furnish illumination for streets and highways in every state, and practically every large city. They are standard equipment on the street lighting units of General Electric Company, Westinghouse Electric and Manufacturing Company, Line Material Company and other manufacturers.

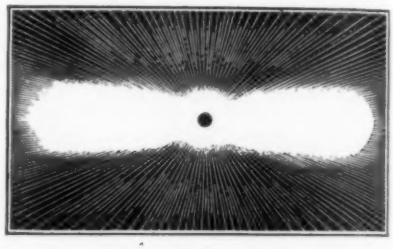
For engineering service or information address Holophane Company, Inc., 342 Madison Avenue, New York. Canadian office, Toronto. Works, Newark, Ohio.

Specify HOLOPHANE REFRACTORS *for Efficient, Economical* STREET AND HIGHWAY LIGHTING

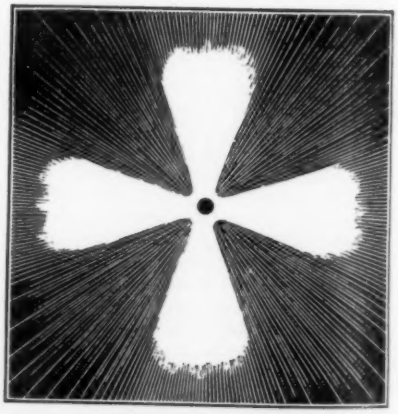


(1) For wide streets—units at curb — closely spaced.

(2) For wider spacing — a longer reach of light.



(3) For highways — a long, narrow ribbon of light.



(4) For intersections—a separate beam for each roadway.

Outdoor Lighting

A Section of *The American City*
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings

Street-Lighting Economics as Affected by the Ability to See

By PAUL H. GOODELL
Street Lighting Engineer, General Illumination Engineering Co., Cincinnati, Ohio

THE apparent interest in economy prompts the discussion of this subject in relation to problems which soon may be confronting us on the rehabilitation of street lighting. It is quite certain that with increasing tax duplicates our cities will demand the improved stimulus for business, the increased safety from crime and accidents, and the reduction of insurance costs which can be assured only by good and effective street illumination.

There is untold evidence that safety, convenience, and the other benefits of street lighting may be greatly improved, and profitably so. The fact still remains, however, that most cities are experiencing difficulty in meeting present obligations, and if increased appropriations are to be the basis for greater benefits, few cities will be able to realize on them as long as the burden of feeding the unemployed exists. This leaves two alternatives: (1) that we develop means for making better and more effective use of the light which our cities can afford; (2) that we admit defeat and permit crime and accidents to continue on their course of death and destruction.

Fortunately, such conditions have been anticipated, and with the greater demand for economy, engineering efforts have been concentrated on the element of quality as the guide for future practice, rather than quantity alone. This is particularly adaptable to lighting practice, since it has long been known that artificial illumination as an aid to seeing has been very wastefully employed. If the economic returns from street illumination are to be increased, it is imperative that we first increase the ability to see, since seeing ability is the controlling medium through which all benefits are made possible. To accomplish such an improvement with a given amount of light, we must first determine the elements affecting seeing and then apply these so that the available light is used to best advantage.

To Insure Seeing Ability

Recently facts have been published resulting from experimental data on seeing in its general application of use. To apply these in a practical installation, some means must be provided for converting the seeing components into the physical factors which can be controlled in the installation. This is the purpose of the new General Illumination Liteindex.

In its application to street lighting, the Liteindex for the first time makes available a method for determining quality so that the municipality may be assured of the maximum in effective and usable illumination for the lighting expenditure made. Strange as it may seem, in these days when economy is particularly essential, most street-lighting systems are providing only about one-third of the seeing ability which modern practice and present expenditures would permit.

Too frequently in the past, street lighting has been considered solely, or largely, in terms of lamp sizes and energy consumption, little regard being given to the results which might be produced. Since economical results depend upon lighting our city streets to the degree of seeing ability best adapted to their requirements, it follows that some means must be provided for designing street illumination in terms of seeing ability. When this is done and sufficient "effective for seeing" illumination is provided to permit the various types of traffic to flow with a high degree of facility and safety, then and only then will our cities have economical illumination.

Preliminary results which have been obtained with the Liteindex system indicate that illumination principles and the Science of Seeing will undoubtedly be given greater emphasis in future street-lighting practice. This is already evident from the slogan "Better Light—Better Sight," which has recently been adopted by the electrical industry. Nowhere is better lighting more urgently needed than on our streets and highways —better light providing more economical illumination, not more expensive light. This will be the future problem of the street-lighting engineer, with seeing ability as the common denominator of all street-lighting economics.

—From a paper given at the annual convention of the International Association of Municipal Electricians held in Wilkes-Barre, Pa., September 26-29, 1933.

A Weatherproof Outlet

A WEATHERPROOF outlet that will facilitate the use of outdoor lighting fixtures and appliances has been added to the line of General Electric wiring devices, it has been announced by the Merchandise Department of the company, Bridgeport, Conn. Made of brass and cadmium coated, it resists rust and corrosion. The flush plate has a solid rubber pad mounted on the back, insuring a snug fit when the device is screwed in place. A cap slips over the cord plug and screws onto the device, assuring a weatherproof connection. Another rubber-insulated cap, chained to the flush plate of the outlet, screws tightly over the outlet when not in use.

Mr. Mayor—

This is Your

PROBLEM!

THE PEOPLE ARE DEMANDING—

The most effective STREET LIGHTING for the least amount of money, thereby insuring their lives and property.

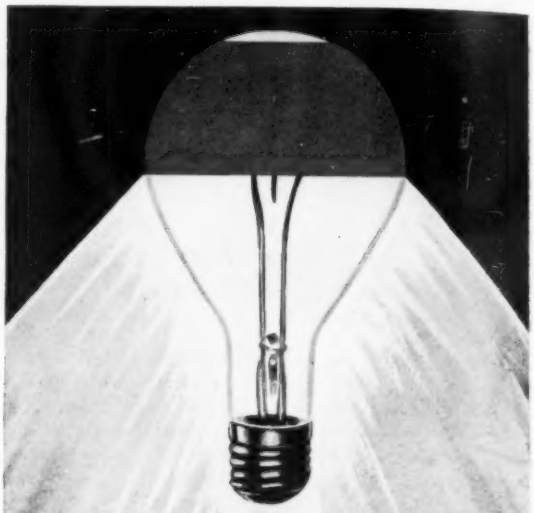
THE CITY IS DEMANDING—

Drastic reductions in MUNICIPAL BUDGETS, including STREET LIGHTING COSTS.

You can solve this problem *simply by installing the revolutionary new*

WELSBACH SILVRAY PROCESSED STREET LAMP—

Increases the effective lighting delivered downward on your streets where it is needed by sixty to seventy per cent at an additional small fraction of your present cost.



WELSBACH SILVRAY PROCESSED LAMP
Light rays toward the street
Protected by U. S. Letters Patent

MORE LIGHT *with* the SAME CURRENT

WELSBACH STREET LIGHTING CO. *of* AMERICA

261 NORTH BROAD STREET · PHILADELPHIA, PA.

Possibilities of Street-Lighting Improvements

THERE is every indication of renewed street-lighting activity in the near future. Street lighting comes under the classification of self-liquidating projects, for which financial assistance can be obtained under the National Recovery Act, and several cities have already filed applications for loans for street-lighting improvements. The city of St. Louis, Mo., will shortly make application for a loan of $1,500,000 to complete the modernization of its street-lighting system, on which the city has already spent $8,000,000.

Discussions on the subject of the sodium vapor lamp in both this and other countries have spread beyond the technical press to the public newspapers. So much publicity has been given to the increased efficiency of the sodium lamp and the increased visual effectiveness of this monochromatic light, that the public in many instances is probably now expecting more from it than is justified from the present status of the development.

Contrary to the general opinion, the sodium vapor lamp is not a new illuminant. Much experimentation was done on it as far back as the early days of the development of the incandescent lamp. During the past two years such notable progress has been made in the development of materials and processes of construction that a D.C. series type of sodium lamp is now commercially available and A.C. lamps are giving satisfactory operation in the laboratory. One outdoor highway lighting installation with sodium lamps has been completed by the General Electric Company at Schenectady* and another will shortly be installed by the Westinghouse Company in New Jersey. These installations have been made for the purpose of studying highway lighting with sodium vapor light and also to obtain data on the performance of these sodium lamps under practical operating conditions. Through them, municipal and central station officials are able to obtain first-hand information on this new method of lighting. It is hoped that other demonstrations will be installed in other cities throughout the United States during the coming months.

The light from the sodium lamp is essentially monochromatic (that is, consisting of only one color as compared with daylight in which all colors are present), falling close to that portion of the spectrum which provides the greatest visual effectiveness. The efficiency of the direct current lamp will range from 45 to 50 lumens per watt as compared to 15—18 for similar sizes of incandescent lamps. Some laboratory lamps have given as high as 70 lumens per watt, and higher efficiencies may ultimately be possible. The visibility on a roadway under sodium illumination is excellent. The light is soft and free from glare and the color, which is not objectionable, affords greater sharpness of detail than is obtained from the corresponding low intensity of "white light" from incandescent lamps. Color discrimination is, of course, unfavorable, as under any monochromatic light—a disadvantage for interior or high-intensity light, but of small importance at the usual low intensities employed in highway lighting, where seeing is mostly by silhouette against the background of lighted roadway.

With so many favorable characteristics, sodium lighting is destined to play an important rôle in future street and highway lighting. At the present time the installation costs of the equipment are high and the cost of lamp renewals will be several times the cost of comparable Mazda lamps. For these reasons, the sodium vapor lamp cannot be expected to quickly replace Mazda lighting. It is suggested that each municipality consider the installation of sodium lighting of stretches of a mile or more for demonstration and observation purposes. Ultimately, manufacturing processes will be evolved which will materially reduce the cost of the lamp, and this fact, together with the probable increase in lamp life, will eventually make sodium lighting competitive with the present incandescent lighting.

—Abstracted from a report of the Committee on Municipal Street Lighting (L. A. S. Wood, Chairman) to the members of the International Association of Municipal Electricians.

* See THE AMERICAN CITY for July, 1933, page 81.

Before and After the Installation of Highway Lighting

In the photograph to the left a man standing 70 feet ahead of the car is unrevealed by average headlights. In the photograph to the right, taken along State Highway Route No. 33, at Collingswood Park, N. J., by the installation of proper highway lighting a man standing more than 300 feet away is readily discernible

Photographs by courtesy of New Jersey State Division of Traffic Control and Regulation; half-tone by courtesy of "New Jersey Municipalities"

HERE IS More Proof

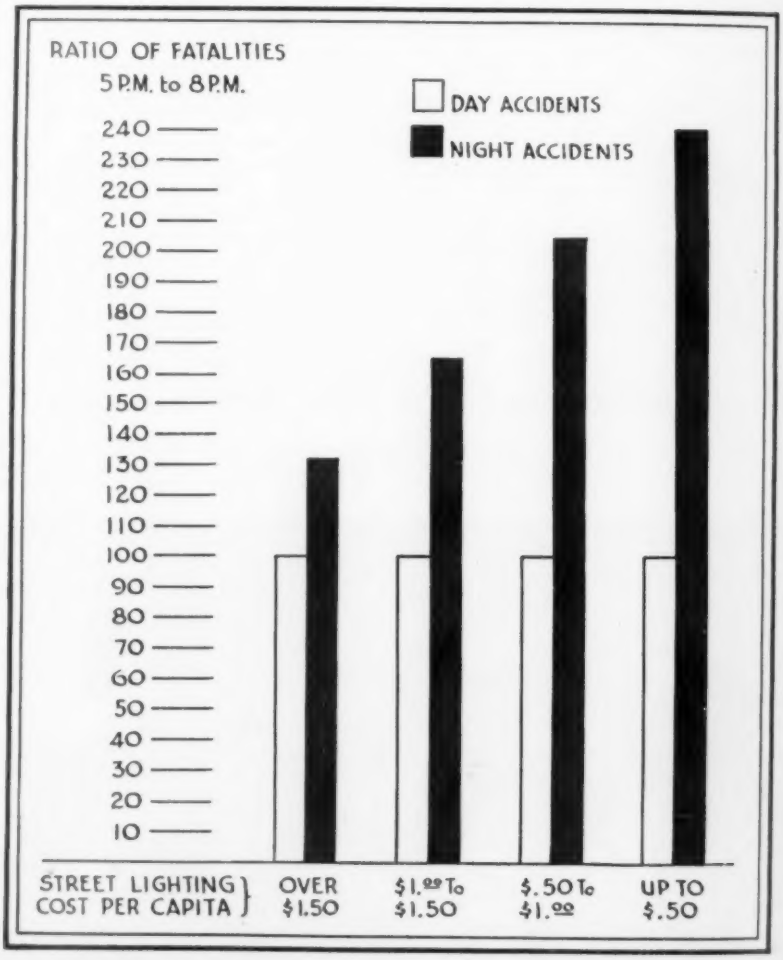
THAT BETTER STREET LIGHTING SAVES LIVES

AS street lighting is increased, night traffic accidents decrease. And the reverse is also true. This is what the Travelers Insurance Company found through its survey of the interrelation between street lighting and accidents.

This survey covers 227 cities with a total population of over 40 million. The period studied was the heavy-traffic peak between 5 p.m. and 8 p.m., which is in daylight during the summer months and in darkness during the winter months.

The chart on this page shows graphically the relation between street-lighting costs and fatalities during this period (Day accidents are taken as 100 per cent). What is most significant, it indicates a definite way in which cities can reduce the tremendous loss in lives and property resulting from night traffic accidents.

Scientifically designed glassware is absolutely essential in order to obtain the greatest possible protection through street lighting. Gleason-Tiebout glassware is designed to meet the specifications of General Electric street-lighting engineers. These engineers will gladly assist you in planning a comprehensive street-lighting program which will fulfill your needs intelligently and economically.



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DECEMBER, 1933

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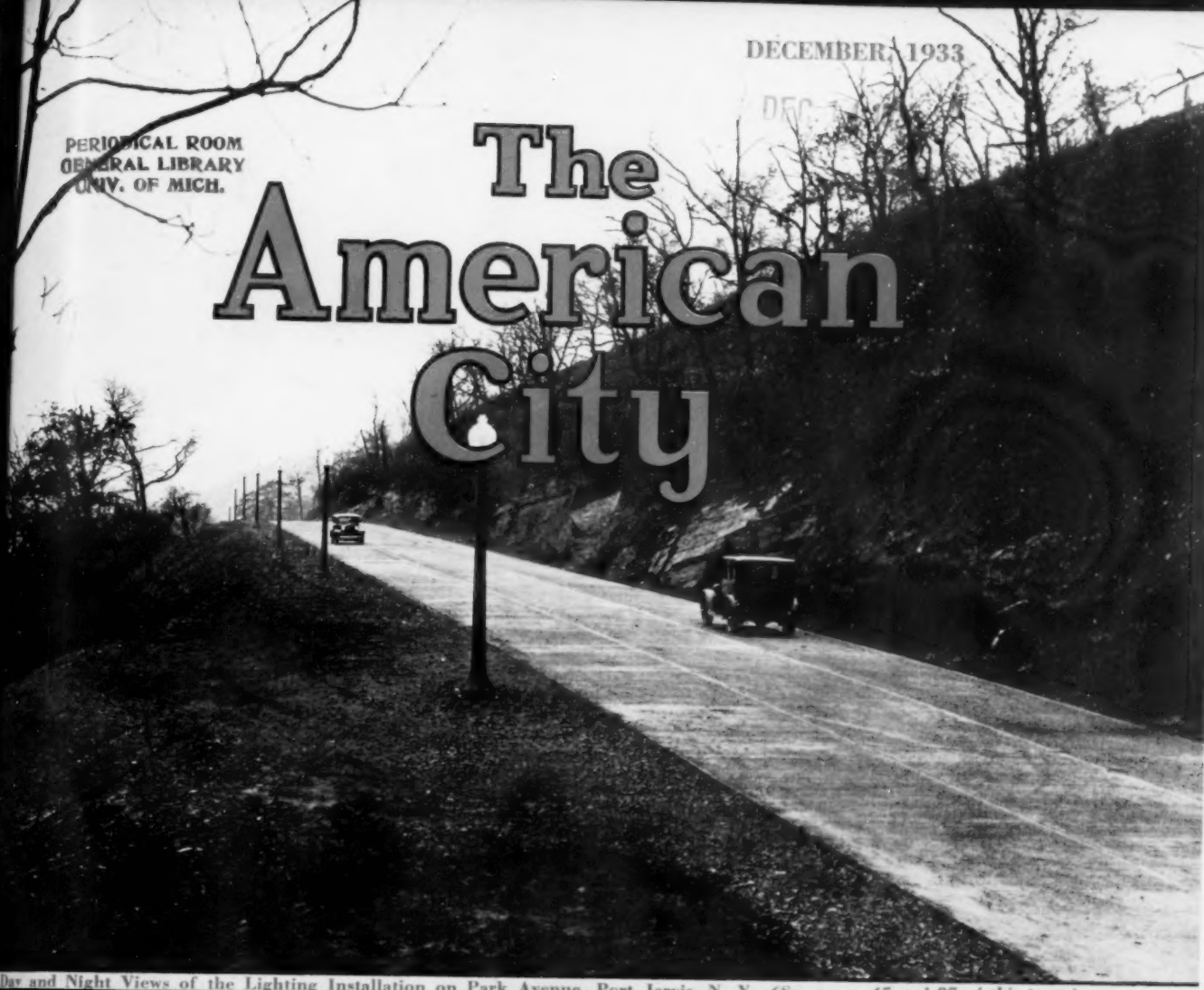

Day and Night Views of the Lighting Installation on Park Avenue, Port Jervis, N. Y. *(See pages 45 and 87 of this issue)*